MICROBITS

A New Unified Physics

M. MUSLIM
NADEEM HAQUE

MICROBITS

BY THE SAME AUTHORS

From Microbits to Everything: Universe of the Imaginator
Volume 2: The Cosmological Implications

From Microbits to Everything: Beyond Darwinism and Creationism
Volume 3: The Evolutionary Implications

From Facts to Values: Certainty, Order, Balance and their Universal Implications

M I C R O B I T S

A NEW UNIFIED PHYSICS

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AND
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The cover picture is a composite image of the highly energetic Galactic Center, with billions of stars. Source: NASA/CXC/UMass/Q.D. Wang.

Behind it all is surely an idea so simple, so beautiful, so compelling that when in a decade, century or millennium, we grasp it, we will say to each other, how could it have been otherwise? How could we have been blind for so long?

John Archibald Wheeler
Theoretical Physicist

I wish we could derive the rest of the phenomena of Nature by the same kind of reasoning from mechanical principles, for I am induced by many reasons to suspect that they may all depend upon certain forces by which the particles of bodies, by some causes hitherto unknown, are either mutually impelled towards one another, or are repelled and recede from one another. These forces being unknown, philosophers have hitherto attempted the search of Nature in vain; but I hope the principles here laid down will afford some light either to this or some truer method of philosophy.

Isaac Newton
Physicist, Mathematician, Inventor,
Alchemist, Master of the Mint, and Unitarian
Biblical Scholar

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**Chapter 1, pages 3 to the first two paragraphs of page 26, are by M. Muslim. The rest of the book is authored by Nadeem Haque.*

This book is dedicated to one of the main founders of the experimental method: Ibn al-Haytham (965 - 1040 C.E.). Among numerous works, he wrote Kitab al-Manazir (Book of the Optics), *around the year 1021 C.E.. The publication date of* Microbits: A New Unified Physics, *therefore, fittingly marks the one thousand-year anniversary of Ibn al-Haytham's monumental seven-volume work. His experimental method had a huge influence, together with that of Ibn Rushd (Averroes) (1126 – 1198 C.E.), concerning cause and effect, in ushering the modern scientific age in Europe (refer to the book:* First Scientist: Ibn al-Haytham *by Bradley Steffens, publisher - Blue Dome Press, 2021).*

PROLOGUE

Physics, in its very fundamentals today invidiously faces a crisis of unparalleled proportions, where a chasm of lugubrious incommensurability exists between general relativity and quantum mechanics; indeed, it is not much of a stretch to say that it stands at the precipice of inevitable total collapse. Indubitably, the universe exhibits undeniable oneness in its harmonious, flawless and integrative natural laws and processes, but our theoretical approaches of the micro and macro domains are fallaciously divergent, methodologically un-substantiable, and utterly irrational. Though it is a bitter pill to swallow for many, the fact is that something has *drastically* gone wrong during the course of our scientific deliberations over the last over 100 years, due to human arrogance, narrow political and institutional agendas serving vested interests, and simply the ineptitude fostered by incorrect and incomplete thinking. This book therefore seeks to radically assess and address the technical causes of this disunification through an examination of both special/general relativity and quantum mechanics. In so doing, *Microbits* proposes a framework that is, logically and irrefutably, the simplest one possible, to achieve that seemingly recondite unification. *Microbits*, as a 'new physics' is indeed a framework possessing inherent coherency and consistency, that re-establishes the proper place of mathematics as a humble servant of physics (concrete reality) and not obtusely the other way around. We need sound ideas of the physicality of nature based on contact dynamics of cause and effect at any level and then the mathematics can follow (as evinced in the History of Science which few people study seriously, reminiscent of Michael Faraday on electricity and magnetism). Indeed, historical considerations on this subject, which most physicists and applied mathematicians are sadly

negligent of, play a vitally significant role in our critical examination.

This tome amalgamates the various papers by Haque, written between 2011 and 2018, with the original book *From Microbits to Everything: A New Unified View of Physics and Cosmology: Volume 1: The Cosmological Implications* that was first co-authored by Muslim and Haque in 2001 and revised by Haque in 2009. The original research by Muslim and Haque began prior to 1996. However, this book is not simply an amalgamation; rather, the writings have been thoroughly revised and expanded, with new evidence and concepts explained.

We certainly believe that in the not-so-distant future, the concept of Microbits will be seen as *the* fundamental building block of the universe and the indubitable kernel of its unification. This will open the door to the *rational* unification of many other disciplines (biological evolution, consciousness, 'science' and 'religion') which will usher in a new technological, environmental and 'spiritual' revolution making our so-called current advancements (which we are so in awe of) seem rather backward in comparison. When will this transpire? Although the future does seem rather precarious and uncertain, we feel that humanity will eventually emerge out of its current immaturity, conflict, chaos and confusion to a better state! Perhaps, this will transpire by the beginning of the 22nd Century, if we allow ourselves the hazards of guessing! This work therefore seeks to configure the solid groundwork required, propelled by Newton's aphoristic vision, put so aptly, precisely and succinctly: "Truth is ever to be found in the simplicity, and not in the multiplicity and confusion of things."

Chapter 1

FOUNDATIONS OF MICROBITS

The thesis being presented in this book is that Einstein's theory of general relativity is incorrect. Specifically, it is demonstrated that it is not space and time that are relative, but only motions. Space is constant, it does not contract, simultaneity is not relative, and time does not dilate. I also establish that the speed of light is not the maximum and that there are particles which travel unimaginably faster than light. In sum, I call for a paradigm shift in our concept of space, time and matter by showing that motion is the fundamental relativity in absolute space, and absolute time and therefore the collapse of the Einsteinian Theory of General Relativity.

SPACE AS DEFINED BY EINSTEIN

According to physicists Nathan Spielberg and Bryon Anderson:

> Einstein showed that, in a manner of speaking, time and space are interchangeable, as is illustrated by the following set of statements, which exhibit the symmetry of space and time:
>
> I. A stationary observer of a moving system will observe that events occurring at the *same place* at *different times* in the moving system occur at *different places* in the stationary system.
>
> II. A stationary observer of a moving system will observe that events occurring at the *same time* at *different places* in the moving system occur at *different times* in the stationary system

III. A stationary observer of a moving system will observe that events occurring at the *same time* at *the same place* in the moving system occur at the *same time* and *same place* in the stationary system.

To illustrate these statements, the moving system might be an airplane travelling from New York to Los Angeles and the stationary system might be the control tower of an airport on the earth. An airline passenger might be sitting in seat 10C. At 8:00 A.M. the passenger is served orange juice, while the airplane is above Albany, New York, and at nine o'clock the passenger is drinking a cup of coffee after breakfast, while the airplane is passing over Chicago. In the moving system, the airplane, both events occurred at the same place, seat 10C, but at different times. In the stationary system, the Earth, the two events occurred at different places, over Albany and over Chicago, as would be seen if an observer in the control tower could look inside the airplane.

The foregoing scenario is very plausible, but a scenario based on the second statement is implausible: Sometime later, when the airplane is over Denver, Colorado, the passenger, who is reading a physics book, looks up and sees a federal marshal at the front of the airplane and a hijacker at the back of the airplane, with guns pointed at each other. Both guns are fired at the same time, as seen by the passenger. As seen by the observer in the control tower on the Earth, however, the shots were fired not simultaneously but at different times. Implausible as it seems, the second scenario based on the second statement is correct.

In a third scenario, after both shots miss, the passenger notices that the flight attendant standing next to him simultaneously gasped and dropped a pot of coffee in his lap, in seat 10C. The president of the airline, watching from the control tower, sees that indeed the flight attendant simultaneously gasped and dropped the pot of coffee into the passenger's lap, over Denver.

The point of all this is to illustrate that because space and time are intertwined they are relative quantities that are different in different inertial frames of reference. Events that are simultaneous in time in one frame of reference may not be simultaneous in time in another inertial

> reference frame. Only if the simultaneous events occur at the same place, as in the third scenario, are they simultaneous in all inertial frames. … Even two otherwise identical clocks will run at different rates in the two reference frames; that is, the time between tick and tock will be different.[1]

CRITICISMS

The first two postulates are incorrect. The error of the first stems from the fact that there is an inconsistency with respect to the definition of space for the observer in motion as compared to that used for the stationary observer. For the observer in motion, space is said to be the seat, while space for the stationary observer is said to be a geographical location, apart from the seat. In order to truly determine whether the two observers perceive the same thing, space must be the same for both. Space must be defined as either the seat of the observer in motion, or a geographic location. Once the error is corrected, both the stationary observer and the observer in motion must come to the same conclusion.

The second postulate is also incorrect. If two sounds are made simultaneously at different places, they are, for all hearing purposes, one event for the observer in motion. If they are not one event for the stationary observer, it can only be because of his *unequal* position relative to the two points where the shots were fired. If sound travels at a specific speed, then obviously, if the stationary observer were closer to a particular point, he would hear the shot closer to him. But if he does hear one shot first because of the time it takes the sound to travel, it cannot therefore be said that time is relative or that space is

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[1] Spielberg, Nathan and Anderson, Bryon D., (1987). *Seven Ideas That Shook the Universe*, pp.164-165. The authors go on to illustrate the foregoing by other examples.

relative. It can only mean that the shorter the distance, the closer the contact. A thing either happens at a particular time or it does not. If the shots are fired at the same time, the fact that they happen at different places is irrelevant. When the many shots are fired at the same time, they are for all purposes in one harmony. If the stationary observer were not placed closer to one point of the shot than the other, but placed perfectly midway between the two points, then all things being equal, it would be illogical to state that the shots fired at the same time, which travel at the same speed, and journeying toward the same destination, must arrive or be heard at different times. We have no problem with the third scenario. But let us see what Einstein himself has to say on the matter.

In the Note to the 15th edition of his *Relativity*, Albert Einstein wrote that:

> I wished to show that space-time is not necessarily something to which one can ascribe a separate existence, independently of the actual physical objects of physical reality. Physical objects are not *in space*, but these objects are *spatially* extended. In this way the concept of "empty space" loses its meaning [emphasis in the original].

Again, Einstein wrote:

> Descartes argued somewhat on these lines: Space is identical with extension but extension is connected with bodies. Thus, there is no space without bodies and there is no empty space.

Einstein then further stated that the general theory of relativity "confirms Descartes' conception in a roundabout way."[2]

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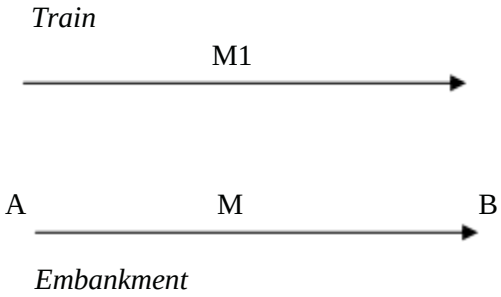
[2] Einstein, Albert, (1952). *Relativity: The Special and the General Theory*, p.136.

THEREFORE, THE RELATIVITY OF SIMULTANEITY

From the equation of space with objects, Einstein proceeded to state that space and time were relative. To demonstrate this "relativity of simultaneity" Einstein provided the following illustration: **"**Imagine a train travelling on an embankment with a constant velocity in say, a westerly direction."



There are observers on the train who use the train as a "rigid reference body (co-ordinate system); they regard all events in reference to the train. Then every event which takes place along the line also takes place at a particular point of the train." Einstein then continues:

> Are two events (e.g. the two strokes of lightning A and B) that are simultaneous *with reference to the railway embankment* also simultaneous *relatively to the train?* We shall show directly that the answer must be in the negative.
>
> When we say that the lightning strokes A and B are simultaneous with respect to the embankment we mean: the rays of light emitted at the places A and B, where the lightning occurs meet each other at the mid-point M of the length A → B of the embankment. But the events A and B also correspond to positions A and B on the train. Let M1 be the midpoint of the distance A → B on the travelling train. Just when the flashes of lightning (as adjudged from the embankment) occur, this M1 naturally

coincides with the point M, but it moves towards the right in the diagram with
the velocity v of the train. If an observer sitting in the position M1 in the train did not possess this velocity, then he would remain permanently at M, and the light rays emitted by the flashes of lightning A and B would reach him simultaneously, i.e. they would meet just where he is situated. Now in reality (considered with reference to the railway embankment) he is hastening towards the beam of light coming from B, whilst he is riding on ahead of the beam of light coming from A. Hence the observer will see the beam of light emitted from B earlier than he will see that emitted from A. Observers who take the railway train as their reference-body must therefore come to the conclusion that the lightning flash B took place earlier than the lightning flash A. We thus arrive at the important result:

Events which are simultaneous with reference to the embankment are not simultaneous with respect to the train, and vice versa (relativity of simultaneity). Every reference-body (co-ordinate system) has its own particular time; unless we are told the reference-body to which the statement of time refers, there is no meaning in a statement of the time of an event.[3]

CRITICISMS: SPACE IS DISTINCT FROM OBJECTS AND OBJECTS ARE IN SPACE

Space is not an object. It is distinct from every possible object and constitutes the non-material medium, like water, in which all possible things move. Unlike Einstein, I state that all things are *in* space. My reasons are as follows: Einstein stated that space is the extension of objects. The fact, however, is that there can be no "extension" that is apart from an object. To be an object is to have a certain quantity, quality or, in other words, a limitation. Either the extension referred to

[3] Ibid., pp.25-26.

by Einstein is part of the object and therefore, the object, or it is not. Therefore, it is meaningless to state that the space of an object is its extension. If the space that a building occupied, for example, were its extension, then it would follow that prior to the construction of the building, there were no such space. It would also follow that if the building were destroyed, its space too would be destroyed and further that there would be no space where there are no objects. Clearly, this proposition is false. Before one can build any object, there must be space for it. Space precedes the object. The object then becomes a position in space, according to its size. When the object is destroyed, the space that it occupied still remains. Space is, therefore, distinct from objects. Since every object occupies space, it must follow that every object is *in* space.

In addition, an object either is or it is not. If it is, it is, it has a form, shape or function. To point to, or to define an object is to point to or to define a specific or definite quantity or quality. Either the extension referred to by Einstein is part of the object and therefore, the object, or it is not. There can be no "extension" that is apart from an object. It is thus meaningless to state that things are not in space, but that objects are spatially extended. If space is the extension of objects, then Einstein is simply saying that "objects are objects extended". This, however, is meaningless. The fact is that there is a multiplicity of objects. This multiplicity is possible only because objects are differentiated or separated from one another. One object cannot differentiate itself from another unless there is space in between them. If objects were not situated in, and separated by space, then there would not have been many objects but one only. Without space, there would be no plurality but a singularity without gap. What do the facts tell us? Is the sun, for example, not separate from the earth? If these are not separated by space, what is the object that can possibly separate them? If in between them were another object instead of space, the sun and the earth and that object would have been one. Differences, parts and multiplicities can only be the result of

things being contained by and differentiated from one another by space. So, objects are *in* space.

The fact that Einstein's postulates about space are incorrect can be further shown from the contradictory consequences that follow from them. According to Einstein, gravitation is the result of the curvature of space-time.[4] What this means is that the sun bends or depresses the area around it resulting in a funnel-like space with the sun at the narrower base and the earth on the wider curved top. The problem is that if objects were not in space but that space were an "extension" of objects, then Einstein's "curvature of space" would more appropriately be called the curvature of an object. But then, if I ask what object is curved, the answer from Einstein is that no particular object is curved but that the curvature is the result of the depression of the space around it, by the sun. But then if space were the extension of an object, how would the sun depress its extension? And what separates the extension of one object from another? Would there be one extension for all objects or would the totality of the extensions be represented by a contribution from each object? Which part of the space around the sun and the earth would be the sun's extension and which part would be the earth's? The point simply is that the theory implies that the sun is at once itself and the warped or depressed space around it; and the earth too is at once itself and the curved space in which it moves. These are impossibilities. The space of an object is not its shadow and nothing sits or moves in itself. If objects sit or move, they must do so *in* something else. I have already shown that thing to be space. Space, however, is not an object, so it cannot curve. Only objects

[4] Morris, Richard, (1987*). The Nature of Reality*, McGraw-Hill Book Company, U.S.A. [Hereinafter, *The Nature of Reality*], p. 95. Richard Morris explains that "objects which move in gravitational fields, according to the theory, do not behave the way they do because forces act upon them. On the contrary, they simply follow the path of least resistance in curved space and time."

have shapes, since shapes are a function of limitations, distinctions, barriers and multiplicity *in* space. In order to have a curvature, one must have a non-curvature, bordering the curvature. Thus, if space were curved, it would be bordered by non-space: this is utter nonsense. If there is an appearance of a curvature, it cannot be the curvature of space but it must be due to something else. What this something else is, is discussed comprehensively later on, in this chapter.

SPACE IS INDIVISIBLE AND LIMITLESS

Because space is not an object, it is not, in fact, divisible. Only objects can be divided. Every limited being or object, whether it is material, angelic or otherwise, must occupy some space. Nothing sits in itself. Besides, the law of opportunity cost must apply to all possibilities. It is not possible to have limited things or worlds unless they are situated in and separated by space. So, wherever there is a countable or limited thing, there must be space. If there is an objectless part of reality, there must be space at that part of reality. Nothing else is conceivable as being present where there are no objects. Everything must be in some type of space; whatever world you conceive of cannot be but in some type of space. There cannot be a spaceless nothing. But space itself need not be in anything and is not contained in anything. Thus, both at the "material" and "non-material" parts of reality there must be some space. Reality consists only of the "material" and the "non- material". Therefore, it must follow that there must be space everywhere, or space is everywhere. Space must be indivisible because in order to have any difference between things, or in order to divide anything at all, one needs space. One cannot logically demonstrate the possibility of multiple "spaces" separate or distinct from one another. If you could 'add' trillion spaces to a trillion spaces you would end up with only one space. Consequently, there is only one indivisible limitless space. It is absolute.

THEREFORE, NO RELATIVITY OF SIMULTANEITY

Since space is indivisible and immovable, it is not subject to change. It is, therefore, constant. When an object moves, space does not move with it. It is an unmovable space that makes motion possible. To move or to have a gap, one needs a space. Because space is constant, Einstein's General Theory of Relativity about space and time must be wrong. Let us go back to his example described earlier. In the example, Einstein stated that two events, which happened simultaneously from the point of view of a stationary observer, may be perceived as non-simultaneous by an observer in motion. From this Einstein concludes that therefore, simultaneity must be relative. The error of the conclusion however is this. To say that some thing is simultaneous with another is to say that both happened at the same time. If you had a clock, both should read the same time. It is true from Einstein's example that the observer in motion may not see that the two events occurred at the same time. But the problem exists only because there is only one observer and he or she shifts positions as the train moves. But the problem can be corrected this way. Instead of one observer on the train, let us make the train itself the observer. Since the train corresponds to the embankment, this would mean that each point of the train would be an observer in motion which corresponds directly with positions A and B on the embankment. Equip every point of the train with a timing device. If we do this, we would realize that at the moment that the two events happen at A and B, there will be two observers in motion whose records should match those of the observers at rest.

We must always make a distinction between an event and the perception of that event. The perception of two or more observers at different speeds may differ about an event. However, to be an event is to occupy a position in space at a particular time. That means that whether the two observers agree or not, the particular event had its place and time. The differences in perception of the observers cannot, therefore, justifiably be used to support the conclusion that there was no event at a particular time and space. If there is any problem, it must

lie with the observers and not with the event. In fact, the problem of relativity is not a problem of speed only. Any difference in the *position* of observers could give rise to differences in their perception. A foot is a foot, but a foot from up in the sky looks smaller than a foot on the ground with the naked eye. But does it then mean that, in fact, a foot is less than a foot? Of course not! The guy high up in the air has a problem. He is too far away, and with his vision cannot see clearly from that far away. What he needs is a device, say a telescope, to compensate for the distance. Once he has the telescope there, he sees the foot as a foot, as clearly as though he had never even left the ground.

It is very difficult to substantiate the claim that space is relative. Because it is not an object and it is limitless, space cannot be sensed, captured or quantified. Consequently, it is not possible to prove the relativity of space by a visual demonstration. Furthermore, if space were relative, depending upon whether one was at "rest" or in motion, Einstein could never have been able to figure that out or prove it. This is because he could not be in the two frames at the same time so as to compare the different frames. If there were not a constant or fixed space to allow for the comparison, his conclusions would have been a mere guess. What type of logic or order do you think governs relativistic objects or frames? Fundamentally though, the attempt to prove the relativity of simultaneity
fails because the concept cannot be logically demonstrated. It is a logical error to state that simultaneity is relative. The thing either is simultaneous or it is not. An event cannot be said to be simultaneous and relative at once. There can be no thing as the "relativity of simultaneity."

Despite the foregoing, however, there appears to be support for Einstein's General Theory of Relativity in the form of (1) Time Dilation and (2) Space Contraction.

TIME DILATION

What is time dilation? Harald Fritzsch explains it with the following demonstration. Suppose you place a satellite at approximately 150,000 km away from the earth and equip it with a special mirror that can reflect a signal sent from the Earth. The speed of light is approximately 300,000 km per second, so it would take a light signal sent from the earth a half of a second to reach the satellite and the signal would also take half a second to bounce back from the satellite. Therefore, the transmission of the light signal between the satellite and the earth would altogether take a second. Now imagine that there is a spacecraft that is moving rapidly past the earth and observing the light signal from its window. Let us assume that the observer is moving at a speed of 100,000 km per second past the earth. Let us suppose that a radio signal is sent out to the spacecraft observer any time the light bounces and the spacecraft receives the signal so that he or she would know when the signal is received. Because the spacecraft is moving away from the earth:

> We see right away that the light signal in the spacecraft's system has a longer path than in the earthbound system... In the spacecraft's system, the exact length of the path depends on the speed of the spacecraft relative to that of the Earth. Since light has the same speed in every system, it would follow that the time in the spacecraft's system runs differently from the time on Earth. The path that the light signal has to travel is longer in the spacecraft's system than in the earth bound system. On the other hand, the speed is the same in both systems, so the time interval must be greater than a second. In other words, time is being dilated. A second in the Earthbound system – that is, a second for our light clock – appears in our spacecraft system as an interval longer than a second.[5]

[5] Fritzsch, Harald, (1994). *An Equation that Changed the World: Newton, Einstein and the Theory of Relativity*, [hereinafter, *An Equation that Changed the World*], pp.107-111.

Does the above illustration prove the dilation of time? Far from it. If the speed of light is constant, then it follows that it must take a longer time for it to travel longer distances. Because the spacecraft is moving faster away from the earth, the distance between it and the signal sent from the earth increases. If as a result of the speed of the spacecraft, the distance between the signal sent to the earth and the satellite is 100,000 km in a second, naturally, the light would need at least one third of a second more to reach the spacecraft. But while more time is needed in order to reach the spacecraft, the conclusion can only be that where the speed is constant, travelling more distances requires more time. In order to prove time dilation, one must place the spacecraft at an exact distance from the earth as the satellite. Then let the motion of the spacecraft be *circular* or *repetitive* in order to obtain the requirement of motion without introducing more distance between the craft and the earth. It is only when, as a result of the motion of the spacecraft, and not as a result of the increasing distance, it takes longer for the signal to travel, that one can justifiably say that time dilates for a moving observer. My prediction is that if this is done, no difference would be found between the spacecraft and the earth's time.[6]

[6] See *An Equation that Changed the World*, p. 139. Because of the foregoing, I find the so-called twin paradox to be erroneous. The paradox is explained by Fritzsch as follows. If a 30 year old twin leaves the earth and travels close to the speed of light for 20 years upon return at age fifty he would see that his brother has aged 40 years in the meantime. The problem is that if one could move faster than the earth, one could only exit but one would not be younger than one's actual age upon one's return. Unless the moon stopped moving regularly, the number of moons that make up a year would remain the same and the folks who do the counting could count your years for you as though you never left. One could *look* or *feel* younger, but that is another issue depending upon physiological processes and not Time. We discuss the so-called paradox extensively in subsequent Chapter 3.

WHAT IS TIME?

Time is no more than a rhythmic measure of constancy. Because of the limitations of our brains, we cannot meaningfully relate to things in their isolation but must process them and relate them to classes, families and sequences. Time is our arrangement of events in succession. Through custom we say, for example, that so many motions of this represents an hour or that so many motions of the moon, represent a lunar year. But motions are just that: motions and not time. It is entirely arbitrary that we call 12 moons a year. Why 12 and not 2,000? As long as the event is quantifiable in a continuous or regular basis, the type of event is irrelevant. In this respect, time is no more than a counting machine. Anything that can count continuously would do. But the significance of events as time is not so much the events themselves as much as it is their *number* and therefore, the position of an event in relation to other events. Because what we call time is counting events only, the measure can be standardized and synchronized across different systems or frames.[7]

Therefore, any event, which is regular and countable, would do: it could be a distance travelled, a tick, a clap, a hum or a drop. The difference between the clock and another moving thing is not that one is time and that the other is not. No, rather, the difference lies simply in the fact that the motion of the one is regular and counted continuously, while the motion of the other may be irregular or even if regular, not counted continuously. To ask what time it is, therefore, simply means to ask how many motions or events there have been since the last count. By taking one regularly occurring event and

[7] See *The Nature of Reality*, p.93. Richard Morris explains that: "According to the special theory of relativity, it makes no sense to say that spatially separated events are or are not simultaneous. Nor can one meaningfully speak of 'now' in a distant place. The relativity of time implies that the concept of 'now' cannot be extended beyond the place I call 'here.' If there is no simultaneity, the 'now' cannot be universal." With all due respect, all possible reality is in the "now."

making it our yardstick, that event becomes, as it were, a countable constant. Since space alone is constant, time, in other words, is a human substitute for space. In this sense then, time can be equated with space. But the equation of time, here with space, does not at all mean that there is such a thing as time independent of space. Time is merely the language of the restless for stability; time does not exist in absolute reality. Absolute reality is timeless. Our sense of duration is only a memory of events in succession. That sense itself exists only in our heads. Yesterday and tomorrow do not exist anywhere in reality. There is only the present. But the present itself is not a place. Each one of us is an event, and the present is no more than your event. Thus, our sense of time is no more than a memory of events, without which we would have no sense of successive time.

SPACE CONTRACTION

Space contraction is the postulate that:

> [A] change in the state of motion of the observer implies a change in the structure of space. More precisely, space will contract in the direction of motion; the rate of this change is the same very gamma factor that describes time dilation.[8]

The error of this space-contraction business appears to stem from the confusion of distance, events or positions with space. But distance, an event or an object is different from space, and its contraction or expansion has absolutely no impact on the constancy of space. If a measure, an event or an object contracts, that can be explained either by way of a problem with the perception of the observer or changes in the composition of the object or event. This, however, cannot be said to lead to the conclusion that space contracts. To say that a thing contracts is to state that it occupies less space than before. Space, however, cannot be said to occupy less space than before. We have

[8] *An Equation That Changed the World*, p. 148.

already seen that space does not move. It goes nowhere. It cannot therefore contract.

MICROBITS AND THE SIGNIFICANCE OF PATHS AT THE SUBATOMIC LEVELS

There is no vacuum in reality. Reality is a continuum between the manifest and the "hidden". In between these two points lies a whole range of incredible number of ever increasingly smaller things. Let us call the least possible thing a microbit. Photons and quarks etc., are not the least possible things in terms of size. There are smaller things than these and the smallest things are the closest to "nothingness". All things are made up of microbits and the difference between one object and another merely lies in their number and positioning in space. There are microbits everywhere in the universe. But the degree to which the presence of microbits affects the behaviour of any given object depends upon the object's number of microbits, its position and structure and therefore, its function or speed. Quantities, structure, positions and speed are the only things that make some microbits birds, and others elephants.

The difference between the electron and the photon is not that the electron has mass and the photon doesn't. Rather, the difference is that the two move in different *paths* or *directions*. At the subatomic level, each thing moves in a specifically and rigidly defined path. The path is equally as important as the quantity or structure of the particle. A change in the direction or path of a particle therefore, results in a change in its behaviour. If you can imagine each particle as having a hand, in one direction, a handshake is possible, while in another directions it is not. Of course, there are consequences that flow from this. In terms of negatives and positives between the electron and the positron, they result simply from the differences in their paths. A positron is simply an electron travelling in a different direction. In this respect, the particle identified as a 'photon' in collision experiments is just an electron that

travels in a different path from both the initial electron and the positron that collide. If, for example, the electron and the positron move east and west the 'photon' moves north and south. Clearly then, the electron assumes the speed of a photon when it ceases to move east or west and begins to move north or south and is mistakenly identified as a photon in contemporary physics. Currently, scientists attempt to increase the speed of electrons to reach that of light by using heavy duty Particle Accelerators.[9]Not surprisingly, this has failed to reach the desired result. The reason is obvious from the foregoing. If you want the electron to move like the photon, make it like the photon; change its direction and it will accelerate. The mechanism by which a change in direction occurs is by way of disturbance, the simplest case being a collision with a resulting *flip* that changes the direction of both or either of them.[10]

WHAT IS LIGHT?

Light is the *result* of the interaction of particles at their own level. Light is not so much a transmission or emission from one object, defined as the source, as much as it is the consequence of the motion of two or more objects already present and in proximity. The production of photons is not unilateral with the alleged single source

[9] See *An Equation That Changed the World*, p. 173.

[10] In this respect those interested in the issue of antimatter may find it very useful to determine the fundamental path of matter. Antimatter is no more than matter that moves in a fundamentally different path or direction than that of matter. Of course, in reality, the default path must be rigidly fixed to maintain the system's integrity and the degree to which one can change the direction or path of same must be limited. Nevertheless, the possibility exists for some manipulation more so at the subatomic level than at the macro level. But the dangers of such things can be so overwhelming that should human beings succeed in finding the direction or path of matter, that could spell the end of the world as we know it, due to destructive military applications. For this reason, I wish that I were wrong on the matter of paths.

producing light 100% by itself while the so-called destination waits passively in an apparent vacuum to be supplied with light. Rather, the process is like a rubbing of dry sticks or stones together. One dry stick does not give light by itself but when rubbed against another at a determined speed with a determined force in a dry atmosphere, light results. Light production throughout the universe is, as it were, a rubbing of dry sticks. The process is better described as one of activation rather than of transmission.

The light of an ordinary vehicle standing one thousand miles away from an observer does not travel at 300,000 km per second while the vehicle remains at rest, to reach the observer. No! We know that if the vehicle remains at rest and the distance between it and the observer is maintained, its light would remain where the vehicle is. It would not be visible to the observer. As the vehicle travels and comes closer to the observer, however, its light necessarily becomes visible. Light from the distant sun, for example, is perceived because of the quantities of photons involved. Indeed, if light (individual photons, that is) moved from place to place you could never have light from your kerosene lamp, for example. Carrying out simple calculations, it can easily be shown that it would not take too long for light to be as such unless a light source were of unrealistically immense number of photons. One would need such an unrealistically high number because if the photons did in fact travel away from it ceaselessly at about 300,000 km per second, a kerosene lamp, for example, could never light the home of the person who lit it, but that the photons, by continuously moving away from the source, could not allow for the cumulative and continuously sustained glow that is called light. In a second, the very first batch of photons would be about 300,000 km away from the source. That is to say, at any moment more photons must be produced than leave. The problem is that regardless of how many you have, all the photons must move at the same speed. The number of photons produced at any time is, therefore, irrelevant for the issue of continuity. What matters is the

rate of production. The only way by which one could maintain the continuity of light would be to produce the next batch of photons faster than the rate at which the first batch leaves, remembering also that the photon never rests and moves at a constant velocity, according to the contemporary view in physics. In other words, before the first batch leaves, the next batch must be born. In order to have the next batch born before the first leaves, the speed of the photon necessary for the maintenance of this fantastical rate of production must exceed the speed of light. If this is true, then the speed of light is not the maximum. I have no problem with the speed of light being exceeded. The problem here is this: how does the light source move faster than light? Just think about it. If the speed of light is the maximum, then it must follow that the photons do not leave their source and travel. Obviously, this does not happen, but with the contemporary photon model we are forced to believe that somehow, the electrons in the lamp are releasing an unrealistically large number of photons from the kerosene lamp.

With the microbit model, light does not travel away from its source but stays with it, with more photons making a bigger circle and therefore a bigger glow. The existent photons in and around the lamp are continuously being activated. This is analogous to having a number of transmission lines being constantly activated. If, for example, there are one million photons around the lamp (to use a simplistic example) and each were activated one million times on average, thereby activating others adjacent to them etc., in a cascade, then on the recording end of the experimental set-up, one would count a million million (10^{12}) photons. With the current model in physics, however, you would need, on the contrary, 10^{12} photons being generated *within* the lamp, and each of these then travelling to the source. In other words, in the contemporary model, using this simplified example, you would need one million times more photons than in the activation model being advocated in this book.

The ability to see light from any given source must depend upon the *number* of ambient photons generated. The reach of light

depends solely upon the quantity of these pre-existing photons generated. The more photons that are generated, the larger the space glowed by them and, therefore, the farther the reach of the light. Photons do not travel away from their source, but circulate within and around that source.

THE UNIQUENESS OF LIGHT

The speed of light on earth is about 300,000 km per second and it appears that, unlike other objects, the speed remains constant regardless of the velocity of the light source. The speed of light from the fastest moving airplane is the same as that of light emitted by a bicycle. This has led majority of scientists today to conclude that therefore, the speed of light must be "the universal constant of nature" and that it cannot be exceeded.[11]This, however, is a hasty generalization and is wrong. But before I proceed, let me explain what I think what light is, and why light's speed remains the same, regardless of the source's motion.

The reason why light continues at the same speed regardless of the speed of the carrier is not because it is the maximum, but simply because it moves differently. Light does not travel in the same manner as does the carrier. The bicycle or the airplane carrying the light moves from one place to another, but light does not. The carrier's motion is 'geofluid' while that of the light is 'biofluid'. Light's motion is repetitive within itself. It is a frequency, it blinks only. In order to add the velocity of one thing to another, both things must be moving in the same *direction*. A thing that repeats or blinks, however, is not in the same direction as a thing that moves from place to place. In order to increase the velocity of a thing that repeats, one must reduce its *rest* factor. Light's manner of moving is like that of a clock.

[11] *An Equation That Changed the World*, p.86.

No matter how fast or slow the source from which a clock is thrown, when it is checked, it naturally still beats at a second per second. This explains why the speed of light is not affected by the velocity of its source. It moves at regular intervals and so its speed can be said to be constant. But constancy is not a wall. If you want to increase the number of times the hands of a clock move in a minute you do not throw the clock from a fast-moving object: you must wind it up.[12]

MICROBITS AND THE DRAG FACTOR

I submit that the above explanation about the uniqueness of the motion of light is correct. However, should it be wrong and should light move in the same manner as any other object, I offer the following alternative explanation as to why the speed of light cannot be the maximum. In reality everything sticks. The reason why everything sticks is because the ability to stick to another is the simplest way to link a multiple number of things. Everything is born with a stickability that compels it to attach to another *defined or specific* thing under the appropriate conditions. This simple means of attachment makes the unity and organic union between things automatic. But a thing's degree of attachment to another depends upon many things, including its number of microbits, its position, structure etc. But stickiness is a drag. The speed at which an object travels is mediated by the degree to which it attaches to its neighbours. The more things attach to the particle as it moves, the more it rests and the more its speed is slowed. Because it is not an island, the photon like all other things sticks to its 'brothers' and 'neighbours' in precisely defined relationships. These neighbours are microbits and other things. The less the number of microbits, in its path, the faster the photon would be. The reverse is true. In other words, one can change the speed of the photon by disturbing the number of microbits or attachable things in its path, or by disturbing its attachability. The speed of the photon is, therefore, the *speed in drag* and

not the maximum speed. If this drag were reduced, the speed would increase.[12]

THE FASTEST POSSIBLE OBJECT

Since photons have attachments, unless it can be stated that photons have the least possible stickiness to things on earth, and for that matter, the universe, it must follow that an object with less attachment than a photon but with the same amount of energy would exceed the speed of light. The only possible way by which a photon can have the least possible attachment is for it to be indivisible further or to be the smallest thing ever. But the photon is made up of a number of microbits and it is therefore divisible into smaller parts. These microbits are smaller than the photons with correspondingly less stickiness. These are faster than the photons.

The fastest object must be the object that can travel the most distance in the least amount of time. As we have seen, time is no more than counted events. The fewer the number counted, the less the time, and the more the events, the more the time. Now an event is no more than a movement, activity or change in space. Therefore, the least possible event is the same as the least possible motion, change or activity in space. By definition, speed is the measure of the distance covered per unit of time of an event or activity. Therefore, the fastest

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[12] See *An Equation That Changed the World*, p. 173.
Therefore, in so far as other particles are similar to the photons, particle accelerators that seek to increase the speed of particles to that of light would need to change the direction and the technique of the acceleration. Currently, in order to get very close to the speed of light, at say, 0.9999973 per cent, protons for example, are accelerated by an energy level that results in a so-called increase in the relative mass of the proton at about four hundred times its rest mass. I predict that if you could find the direction or path of the photon, and direct the proton that way, this would result in the creation of a proton moving at the speed of a photon.

object is simply the fastest event. In other words, the fastest object is the fastest event that can take place as the least possible event (time) takes place (noting that time is nothing but a measure of motion or change in absolute space). The least possible event can only be one. Therefore, the fastest event can either be a bigger event than the event of time, or it must itself be the least possible event. But the fastest event cannot be bigger than the event of time, because the event of time (the smallest motion) is simply the smallest event possible. Any bigger event must be a number of these least possible events. So, the fastest event must be the event that takes place as the least possible event takes place. Since the fastest event cannot be bigger than that of time (the smallest possible motion), it must follow that the fastest event must be the least possible event. That is another way of saying that the fastest event is the least fraction of time.

But time is no more than a quantifiable activity, motion or change in space. The least possible event is, therefore, the smallest change or activity in space. A change or a motion always takes place between two ends: the beginning and the end point. The least possible change or movement, is therefore, the change between the two smallest or shortest points in space. Two shortest points in space are the same as the least portion of space. The fastest possible event, therefore, lies in the motion of the smallest possible object in space.[13]

I have shown that reality represents the configured positioning and motion of microbits in one limitless Space. Space is constant and it does not contract, time does not dilate and the speed of light is not the maximum in the universe. Contrary to Albert Einstein's theory of general relativity, I submit that it is not Space or Time that are relative, but only motions and events in absolute space.

The basic claim of this new theory is that there is only one fundamental type of particle from which the entire universe has originated and evolved. This particle not only comprises all of the forms

[13] In other words, the less material a thing is, the faster it can be.

in this universe, but so too does it comprise all the so-called four forces that are known to exist in contemporary physics. Microbit theory does not introduce microbits arbitrarily, but, rather, they are an integral part of the evolution of the universe – without which there would not be any universe of our kind. If one recalls the famous story of the village of the blind, where the body of an elephant was interpreted differently by people attaching themselves to, or feeling only specific body parts, such as a snake for someone feeling the trunk, or a tree, for someone feeling the legs, and so on, we seem to be in a similar situation with physics today. In this case the elephant is a very tiny thing indeed! It is the *microbit*, but it has not been generally realized that it exists even conceptually, and that, furthermore, it is the unit for building everything in existence – even for the so-called four forces. Although we shall explain microbit theory in this section with respect to the 'forces' that exist in physics and achieve unification, the model is a visual one, describing concrete interactions.

Before the 19th Century in Europe, the exact mechanics of the hydrological cycle was not known and there were several theories in vogue. Einstein's relativity is like one of those *incorrect* theories that may only *partially and operationally* explain things, though the reality of the actual mechanics is not explained. Our explanation tries to replicate in one's mind, the concrete interactions surmised as taking place in nature. Although this book has some mathematical treatment, a detailed mathematical construction can be given at a later stage, once the theory gains supporters and/or its predictions start manifesting themselves further, upon research and experimentation. The microbit model is based purely on two primary notions:

- The existence of absolute (so-called 'flat') space.[14]
- The motion, shape and distribution of the sub-submicroscopic structures in absolute space which we term *microbits*, or the *origin particles (O-particles)*. One could say that the microbits are the 'atoms' or unit building blocks of the sub-atomic particles and all the known 'forces'. They are the smallest inanimate entities next to absolute nothingness.

In this microbit view, many aspects of special and general relativity are seen as approximations of this theory, just as Newton's theory would now be regarded as an approximation to Einstein's equations. However, if Einstein's theories are seen as representing reality, then such a claim for these theories are erroneous in the sense that firstly, General Relativity is only an operational theory, in our view, whereas Special Relativity has internal contradictions within its very foundation.

We believe that the mechanics of the universe are circumscribed by what could be termed *microbit cosmology*. Historically, it must be remembered that just as when the geocentric theory tended to make the explanation of heavenly phenomena more convoluted, with the heliocentric model solving the observational problems, so too does microbit cosmology yield a unifying view from the micro to the macro, eliminating all the basic problems and disunity inherent in quantum mechanics and relativity.

[14] Refer to: de Bernardis, P., *et al*, (2000). "A flat Universe from high-resolution maps of the cosmic microwave background radiation", *Nature*, pp. 955-959. Hu, Wayne, (2000). "Ringing in the New Cosmology", *Nature*, pp. 939-940. Note that the latest research not only further confirms the Big Bang origin of the cosmos, but the most accurate observation to date also reveals that the universe is flat (i.e. not curved).

THE SOLUTION FOR THE ORIGIN AND UNITY OF THE PHYSICAL FORCES

The universe has emerged from a 'singularity' (Big Bang),[15] which, as it 'exploded', dispersed the initially compact type of particle, which we call the microbit. All microbits in existence were once all joined together as one piece, forming the 'singularity'. The microbits, enclosed in such a small volume region, arose as a necessary logical construct of the simplest and most elegant structure of reality in absolute space, from which all the further complexities of the universe evolved. Indeed, no simpler object could have existed from which to 'kick off' the universe, which would later, through permutations and combinations, have formed this vast system we call the universe. This 'singularity' that we are describing is not of the type connoted by the standard mathematical usage of the term 'singularity', that is, a dimensionless point of infinite density. Rather, the singularity that we are referring to, was neither infinitely small nor infinitely dense; rather, it was the densest possible spherically compacted region of a finite size, built of the smallest possible particles.

The question which naturally arises is that if the singularity, with the 'explosion', fragmented into these unit particles with spherical expansion, then how did the accretion between all the microbits take place to form the very early subatomic particles, such as

[15] Srianand, R.; Petitjean, P. and C. Ledoux, C., (2000). "The cosmic microwave background radiation temperature at a redshift of 2.34", *Nature*, pp. 931-935. The latest support for the Big Bang comes from cosmic microwave background radiation. The basic prediction of hot Big Bang cosmology is that its temperature should increase with increasing redshift. The latest measurements as reported by Srianand *et al*, are in agreement with the temperature of 9.1 K predicted by hot Big Bang cosmology, since they show us that the background radiation was indeed warmer in the past, falling between 6.0 K and 14 K.

electrons etc.? Now, as stated before, the inherent property of microbits is that they have a natural adhesion, that is, they are 'sticky'. It is this bonding property that has caused the production of all other present elementary particles (the mechanism of this 'bonding' will be explained in due course in this book). With the 'explosion', the microbits started to move away from each other; however, conversely, at the same time, the adhesive property of the microbit also came into play, creating larger particles by intercollisions. Any heterogeneity in the initial expansion from the singularity, as we have described it, was set right at the beginning as an initial property of the expansion. Obviously, first, the smaller particles developed, such as the electrons, photons, quarks etc.; then these began to combine to produce the first atoms (hydrogen and helium etc.). One may review the standard development of particles in numerous literature on the Big Bang and note that the description based on microbits differs for the earlier and the 'unknown' periods before the Plank Era of 10^{-43} seconds. According to the contemporaneous models, physicists cannot sensibly describe any moment before the Plank Era. After the Plank Era, and after 10^{-35} seconds subsequent to the instant of the Big Bang, the forces of nature are thought to have separated, and quarks and leptons begin to form in great quantities. This is known as the Hadron Era, which lasts until 10^{-6} seconds after the Big Bang. Following this is the Lepton Era, when protons and electrons are created and antimatter is annihilated. This Era spans from 10^{-6} seconds to 1 second. From 1 sec to 1000 seconds, nuclear processes occur and helium is synthesized and ionized gases form up to 10^{13} seconds. From 10^{13} seconds to $5x10^{17}$, galaxies form. In fact, as it shall be exemplified in due course, not only are *all* particles made up of microbits, as stated before, but so too are all the forces. With microbit cosmology we can explain things right from the beginning – *from zero seconds* and follow the microbit processes as the microbits coalesce to form electrons, atoms, quarks and, prior to this, smaller particles that make up quarks and electrons not

detected yet in physics. *In microbit physics, consequentially, no distinction exists between particles and all the forces.*

PREDICTIONS OF THE MICROBIT MODEL

Some of the things that this theory predicts are:

- Everything has mass. Mass has been redefined in this model as the conventional human measurement of motion influenced by the stickiness (adhesive) property of microbits.[16]
- The electron[17], photon and quark are not elementary particles but are ultimately comprised of microbits – the unit particle.
- The universe has an edge and the balloon analogy that physicists usually give as a solution to, or try to escape from the 'edge problem' is problematic in itself.
- The universe has an absolute centre of expansion although to us we seem to be at the centre.
- Faster than light travel is possible.
- The velocity of light is independent on the source, but the velocity is not *c* in all frames of reference.
- Einstein's theory of general relativity, in terms of curved space, is only a mathematical model depicting motions or ensemble interactions of microbits. Curved space is fiction and this fiction will increasingly be realized with the passage of time.

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[16] It has recently been discovered that neutrinos also indeed have mass albeit very small! Refer to: Giles, Jim, (2001). "Flavour switching solves riddle of missing neutrinos", *Nature*, p. 877.

[17] Maris, H. J., (2000). "On the fission of elementary particles and the evidence for fractional electrons in liquid helium." *Journal of Low Temperature Physics* (2000). The latest research suggests that the electron is being split, in its passage through liquid helium, into 'electrinos'; these have been hypothesized by Maris in order to explain the tiny bubbles that are created when electrons are injected into liquified helium.

- There is no indeterminism in the universe.
- A field is a set of particles dynamically structured in a particular fashion in absolute space.
- The interactions between particles smaller than the present assumed 'elementary' particles can be described by what we term *microdynamics*. Extension of Newton's three laws by two laws of microdynamics can explain all motion under the rubric of one unified physics that explains the basis of reality and all structure and motion.
- There is no action at a distance, as contact is made at the microbit level, and not through 'virtual particles'.
- The bending of light around the sun, can be explained by the interaction of the photons with the gravity particles – not curved space. This, we predict, will be confirmed in the future.
- The gravitational model that emerges from the microbits model has been applied, in this book, to solve the problem of the rotational velocities in spiral galaxies. The model explains the high rotational speeds for the outlying stars', and reveals that there is no dark matter halo in such galaxies, needed to explain the non-Newtonian speeds for the regions in question, within these galaxies.

We will endeavour to expand on all these points and more, in depth, in the course of this book.

THE CONTEMPORARY FORCES OF PHYSICS

In contemporary physics the four forces are:

- Strong, weak, electromagnetic and the gravitational. The strong force is the strongest of all. It is responsible for holding together the protons and neutrons as well as the quarks that go to form the protons and neutrons.
- The weak force is the weakest of all affecting all matter particles but not those particles that carry forces.

- The electromagnetic force is the one that arises between electrically charged particles. It is the second strongest force.
- The gravitational force is the third strongest force – always attractive.

How are the forces explained in terms of microbits?

SOME MICROBIT PROPERTIES

Conservation of Microbits: The Prime Law**:** Microbits cannot be destroyed unless the universe collapses to the initial quasi-singularity. They are conserved. For example: when an electron and positron collide according to contemporary physics you get:

Electron + Positron = Photon 1 + Photon2

The interpretation of microbit theory is different: there is no anti-matter only anti-motion. The *prime law is the conservation of microbits* and concomitantly the conservation of momentum/energy. According to this view, the electron exhibits the properties of a photon, upon collision with a 'positron'. In fact, we believe that its rotational motion (spin) changes. By spin we mean actual spin (with spin rates and axes of spin) and not some abstract formulation based on quantum mechanics where the axis is not well-defined. The electron is an extended object and an extended object is not a dimensionless point, as it is taken to be in contemporary physics. It has a structure and its own particular motion in 3D space. An object such as this either has a spin, has no spin, or has a complex or erratic motion. It must, logically speaking, therefore have some type of 'self' motion, based on its structure and the environment it is travelling through, which may or may not affect this motion.

The microbit concept is states that the present mathematical models are only operational, and that the universe is deterministic. In quantum mechanics we only get certain aspects or glimpses,

based on equations. Yet the fact is that an object cannot be a point or, in other words, dimensionless, if it exists. But then how do we account for the fact that most physicists are imbibing this illogical idea? To understand this, one has to step back and realize that their position has to do with the educational system that has been a victim of historical events. In Western Europe, many people had counter-reacted against the irrational and superstitious teachings of the Church during the European Dark and Middle Ages. Eventually, Logical Positivism arose, which stipulated believing in something only if one were able to measure it. Because, due to the state of our experimental technology, some things were not measurable simultaneously (i.e. velocity and position) it was concluded, irrationally, that because one could not measure such properties, the particular properties of the object being studied would not have intrinsic existence until measured. In other words, Heisenberg's uncertainty principle was given a false property of being the decider of ontological status, rather than a mere operational and mathematical tool. In the 20th Century, this view has become the dominant one, and has been institutionalized. With such a n irrational institutionalization, we have the problems of rigid perceptions, or honest misperceptions due to not questioning what is being taught and so on. This mindset leads to views being presented in this book, for example, as being criticized for not sticking to standard textbook assumptions and equations, many of which, as we are pointing out, have an historical basis of erroneous assumptions.

According to microbit theory, the collision between an electron and a positron, the rotational energy of the colliding positron and electron get transferred into linear energy which results in an increased speed and the identification of it being a 'photon' (though in reality it is just a speeded up electron). Microbit theory leads us to the conclusion that the electron speeds up to the value of *c*, in such situations. However, the normal phenomenon of light, in microbit theory, is not based on speeded up electrons; it is based

on our *activational pulse transfer model* for photons in space, described in subsequent sections in detail.

Before proceeding, here are some further concepts underlying microbits:

What is mass?

Mass is the total "stickiness" of the microbits of one object interacting with another. We use our conventional scales to measure this.

What is energy?

A human conventional measure of the amount of effort required to move or break-up microbitic structures on/of various sizes/levels.

What is time?

Human convention to measure, using equal intervals (motions), the transformation and/or movement of microbits in absolute space.

What it negative and positive?

When an electron comes across a proton, does it see a sign saying + and itself as – ? Obviously not, since its attraction to the proton is a structural and motion-based issue related to form, function and process in three-space, not subatomic placards!

INELASTIC VERSUS ELASTIC COLLISIONS AT THE MICROBIT LEVEL

On the issue of elastic versus inelastic collisions: When two objects collide, an elastic collision conserves both energy and momentum, whereas an inelastic collision does not conserve momentum. Does not the collision of microbits as described when discussing gravity (g-particles), or the basis of the repulsion of electrons violate these laws in the sense that they are both elastic and inelastic collisions at the same time? Usually, when objects collide, they

may stick together and travel in one direction (an example of a perfectly inelastic collision) or, they may hit each other and both recoil, preserving momentum and kinetic energy (a perfectly elastic collision). On page 73, however, we have an example of microbits colliding inelastically and then recoiling elastically, also shifting the object that they collide into, into the opposite direction. To see why this does not violate the law of conservation is to go to the root of what the law of conservation is all about. Firstly, as stated previously, no microbits are lost. None of them vanish. This is the basic law of conservation. Secondly, all the laws on the macroscopic domains are a result of the motions of the microbits. The inverse square law is a result of the density distribution in absolute space of microbits and other larger particles. *If the microbits themselves define and form gravity in this way, how can they be subject to gravity, or to the acceleration due to gravity?* It is indeed a fallacy in thinking, given the stated structure of the microbit model, to assume that the term *'m'* for mass in the standard energy and momentum equations applies to the microbit itself, and that the reactions should follow the conservation rules, in terms of elastic and inelastic collisions based on such equations for the microbit as well.

The basic properties of the microbit are its size, its indivisibleness, its stickiness and its 'bounciness-cum-springiness' or deformability upon collision; then it moves according to the environment it is in. In conclusion: *No momentum or conservation laws are violated because the microbits form these laws themselves at the level of particles* larger *than the microbit, due to the nature of their distribution in absolute space*. The reason why, on the macro level we either have elastic *or* inelastic behaviour is because energy is dissipated. But at the microbit level, the microbits' motion, which is the basis of *all* energy, no such dissipation occurs because the microbits are not lost, but only collide and move away from each other. When they do collide, they 'stick', but this is not the 'glue'

type of stickiness. The 'stickiness' means that when they do collide, there is not gap between their surfaces; at the point or region they are perfectly joined. The two microbits then break up due to their 'bounciness' which puts an end to the brief co-joinment.

SOME HISTORICAL CONSIDERATIONS

It is crucial to understand the history of physics in order to understand why microbits is the solution. Einstein tried to reconcile Maxwell's equations to satisfy the two postulates of relativity[18] including the constancy of light. Einstein's ultimate aim was to reconcile kinematics with electromagnetism, and his method of approach differed from that chosen almost automatically by others in that it proposed a modification of kinematics rather than of electromagnetism for this end. Dingle elaborates that electromagnetic experiments to test special relativity cannot work because the theory has to be tested on kinematics upon which it is based:

> All that its success in electromagnetism, however extensive and various, can show that, *if* the proposed kinematics is tenable, then it has achieved its object; it can do nothing at all to show whether the theory is right or wrong. [19]

As the renowned physicist, David Bohm explains, with regards to electromagnetism, which inspired Einstein towards his Special Theory of Relativity:

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[18] The two postulates of Special Relativity are:

1. The laws of physics are the same in all inertial systems. No preferred inertial system exists (the principle of relativity).
2. The speed of light in free space has the same value *c* in all inertial systems (the principle of the constancy of the speed of light).

[19] Ibid., Dingle, p. 149.

> In one case the magnet is considered to move past the conductor, a loop of wire is connected to an electrical meter. Through the electrical field associated with the moving magnet, a current is induced in the wire – the net result is a deflection of the meter. In the second explanation, the electrical conductor is moved past the magnet, which is now at rest. No electrical field is produced in this case; rather the magnetic force on the charged particles (electrons) in the wire cause a current to flow and a deflection of the meter. Two quite different and apparently incompatible explanations are therefore produced for one and the same phenomenon: the flow of an electrical current when a magnet and a wire move relative to each other.[20]

For this, Einstein introduced the Lorentz contraction. David Bohm goes on to state that:

> Through his [Einstein's] perception that relative motion was the essential point, Einstein was led to see electrical and magnetic effects not as absolute and independent but rather as relative to the state of motion. ...To achieve the new unity between electricity and magnetism, Einstein had to suppose that time, measured in the frame that moves relative to the laboratory (say, the magnet), is different from time measured in the stationary laboratory frame (say the fixed wire).[21]

Philosopher Paul Thagard also elaborates on this:

> [Einstein's] initial paper, "On the Electrodynamics of Moving Bodies," begins by discussing the asymmetries in the applications of Maxwell's equations to the reciprocal action of a magnet and a conductor. [According to the equations if] the magnet is in motion and

[20]Bohm, David and Peat, F. David, (1987). *Science, Order, and Creativity*, p. 7.

[21] Ibid., Dingle, p. 137.

> the conductor is at rest, then an electric field arises, but not if the magnet is at rest and the conductor is in motion.[22]

In that paper, Einstein wrote that "…the same laws of electrodynamics and optics will be valid for all frames of reference for which the equations of mechanics hold good."[23] He then postulated the Principle of Relativity. This refers to the exact correspondence between the compared expressions of physical laws between a stationary scientist and a moving one, each observing each other's experiments from their own frames of reference.

One of the basic problems with this view is that we are coming to realize that: Everything is motion – even the laws we are finding out more about are based on particles (e.g. the electro-weak force). Therefore, it must be realized that any law in the universe is based on a human encapsulation into mathematical symbolic language of the relationships of the interactions (motions) taking place whose registered speed of interaction is dependent on the observer. If a 'law' involves the exchange or speed of particles travelling from point A to point B at the speed of light 'c' then if we are also, for the sake of argument, travelling at 'c', light would appear stationary. There is no violation of any laws as such and there was no need to reform kinematics[24]– a choice taken by Einstein to preserve Galilean

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[22] Thagard, Paul, (1992). *Conceptual Revolutions*, p. 207

[23] Einstein A., (1952). *The Principle of Relativity*, New York, Dover, p. 37f.

[24] In order to combine mechanics and electrodynamics within an all-embracing principle of Galilean Relativity, three main choices were available.

1. Alter Maxwell's equations in such a way as to make them covariant under Galilean transformations.
2. Introduce new transformations rather than the Galilean ones whilst leaving Maxwell's equations unchanged, yet achieving the required covariance under transformation.
3. Replace the existing Maxwell's equations by a new set of equations.

Relativity. The very fact that our knowledge that we are travelling at 'c' as well would enable us to realize that the particles we were observing were also travelling at 'c'. There was and is nothing sacred about Galilean Relativity that must be preserved in the case of electromagnetism by altering perceptions of reality – of space and 'time' – the way Einstein did, especially if other choices were available for preserving Galilean Relativity in *absolute space*. History will no doubt show that the obviously convoluted 'solution' that was employed, that is, choice number 2, will rank as one of the greatest conceptual blunders in the history of science.

Einstein's thinking that was, in effect, retrogressive, and far from being a scientific 'genius', he was, in reality, a genius for attempting to change reality rather than for understanding things as they are, and then describing them and offering a solution. The German philosopher Kant was shrewd enough to observe this tendency in human beings when he stated that:

> It seems surprising at first, but is non the less certain, that our reason does not draw its conclusions from Nature, but [erroneously] prescribes them to it.

One's model has to conform to reality; it is not reality that has to conform to the model. While there has been a degenerating drift by making models fit reality, it is part and parcel of a wayward trend where: In modern physics, mechanical visualization in images has been supplanted by a new higher type of visualization, if one may put it so – logical "visualisation" of abstract mathematical schemata of phenomena.[25] Such visualisations and mathematical or geometrical approaches may be fine, even though

[25] Rodichev, V.I., (1983). "Methodological Aspects of Unified Field Theory Theory", *Einstein and the Philosophical Problems of 20th Century Physics*, p. 346.

not the optimal approach, so long as we realize that they are merely operational procedures, and not a physical description of actual reality.

The Lorentz transformations were introduced in order to preserve Maxwell's equations that did not agree with Galilean Relativity. These ideas, emerging from special relativity, applied using the Lorentz transformation, were subsequently employed to formulate General Relativity by introducing the unity of space and 'time' within special relativity. Consequentially, instead of discovering a reality-based model, an abstract model was created by mathematical manipulation, which was generalized and has become a dogmatically entrenched view with logical inconsistencies. The chief architect of this further mixing of apples and oranges, although the oranges did not in reality even exist, was the mathematician Hermann Minkowski. Dingle elaborates that:

> Einstein's theory was designed to provide a relation that held for both kinds of events [both for electromagnetic and kinematic]. It was wholly physical, and concerned wholly with a problem of the traditional kind, involving only traditional concepts. [However, through] … Minkowski's metaphysical interpretation of his own mathematics, it came to be enveloped in a metaphysical cloak that had nothing whatever to do with its essence.[26]

At the beginning of this century, when Lorentz, Einstein and Minkowski were tackling these scientific issues 'relativity' theory was mistakenly ascribed to all these individuals as if they were referring to the same theory. However, Lorentz's theory demanded an aether, whereas Einstein's was not valid with one. Einstein and Lorentz were only concerned with 'instants' and 'duration' whereas Minkowski brought in `eternity'. Space and time were taken to be interchangeable, whereas in the original paper of Einstein, they were not described as thus. As people began to assume that such was the case, the theory

[26] Ibid., Dingle, pp. 137–138.

began to be seen as something beyond normal comprehension. The mathematicians began to pronounce absurd theorems and the experimenters gave in due to "mental inertia" as Dingle put it. The other problem was the institutionalization of mathematized physics of relativity that the older generation before Dingle, which comprised of great and distinguished scientists, did not master, and as a result, did not challenge. The newer generation took over the error of the inordinately mathematized physics and was not even willing to consider Dingle's ideas challenging them (which eventually resulted in his writing the critical book entitled *Science at the Crossroads*). Likewise, the older generation was also wary of challenging the newer one, as Dingle found his utter dismay.

Herbert Dingle categorized epistemological confusion associated with the formulation/interpretation of special relativity into four categories. There were the errors in:

1. The relationship between mathematics and physics.
2. The erroneous substitution of observers for coordinate systems.
3. Literal interpretation of metaphors.
4. Circular reasoning.
5. The multiplicity of the meanings associated with the word "time".

In this section we shall examine the first four points. In the next section, we shall discuss in great depth, the fifth point which really encapsulates the first four. Let us now examine these issues in some detail:

On the relationship between mathematics and physics:

Dingle states that both "…Galileo and Newton took *experiments* or *observations* as their starting point, and used mathematics only as a tool to extract the maximum amount of knowledge from the experiments and as a means of expressing that knowledge."[56] He goes on to state that: "…Maxwell showed that Ampère's law in

electromagnetism, expressed mathematically – which of course I have said, was a mathematical expression of results found by experiment – did not satisfy the equation of continuity but could be made to do so by a purely mathematical modification. Accordingly, he assumed that this modified form was the actual physical law."[57]

Dingle points out that, originally, Maxwell's equations were formulated to explain observational phenomena. However, ironically, mathematics became the master of physics with the emergence of these equations. No longer was mathematics serving as a language to describe observations – the equations started to take on their own reality. Instead of 'time' being interpreted as durations and instants (i.e. a measurement of changes), it became confused in many a discussion or paper with 'eternity'; hence, it became a malleable object, subject to contraction, dilation etc.

On the erroneous substitution of observers for co-ordinate systems

In the literature of relativity, there is almost invariably a great deal about 'the observer', and statements about what different observers, in different states of motion, will observe. Dingle goes on to explain that "in special relativity theory, the observers whom it is considered worthwhile to compare are those whose relative motion is very great indeed – far greater than anyone has yet managed to make possible" and that it should therefore be left out of an explication of the theory altogether.[27]

On the literal interpretation of metaphors.

Dingle rightly states that when we measure the mass of an electron it appears to be taken in the minds of people to mean the same as a mass of lead, for example. When we are talking of lead we put it on the

[27] Ibid., p. 138.

weighing scale, but not so with an electron. He concludes that physicists have forgotten that the metaphorical nature of description and have drawn a false picture from the use of language on this subject.[28]

On Circular Reasoning

The other problem that lurks behind many a formulation in present day physics is circular reasoning. This is what Dingle had to say about the tests for relativity and of the fallacy of circular reasoning:

> We shall see that this is precisely the case with this (and indeed every other) supposed confirmation of relativity involving hypothetical particles. Einstein, as he said (see pp. 159-60), designed his theory to conform to the Maxwell-Lorentz electromagnetic theory which he accepted as equivalent to 'certain'.[60] All that the supposed confirmations support is therefore the fact that special relativity was well designed for its purpose. They tell us nothing whatever about the truth of either electromagnetic theory or special relativity (or Lorentz's) theory itself. An example of the illusion that they do that we have already met is advanced by Sir Lawrence Bragg concerning cosmic rays (p. 111) and expressed in the usual jargon in the editorial in *Nature* (see Appendix) in the words, 'short-lived mesons in the cosmic rays appear to observers on the surface of the Earth to last long enough to reach the ground.' It needs not saying that the duration and distance of their fall are not measured by a stop watch and measuring tape but are first inferred from a course of reasoning that includes the original Maxwell-Lorentz theory, and is then 'corrected' by the special relativity theory designed for the purpose of correcting it. Is it surprising that the answer comes out right?
>
> It is impossible to believe that men with the intelligence to achieve the near miracles of modern technology could be so stupid as to fall

[28] Ibid., pp. 140 – 145.

> into this elementary error had they not, through long familiarity with the words, unconsciously come to believe that mass, time, distance, and such terms mean the same for hypothetical particles as for the world of senses. Physicists have forgotten that their world is metaphorical, and interpret the language literally. I do not think Einstein would for one moment have regarded these cosmic ray observations as *evidence* for his theory, but only as an *application* of it. His theory in itself was wholly kinematical: it corrects electromagnetic theory because it created a new kind of kinematics for that end; it can therefore be *tested* only by straightforward kinematics with sensible bodies, and by reasoning in which the words used have their literal, and not their metaphorical meanings.[29]

Now that the cracks in Special and General Relativity are becoming clear, various models have been proposed to explain the universe, but what they lack is an integrating and unifying feature. If for example, it is claimed that there is a 'dynamic aether' that surrounds and moves with the particles then the question remains: Is the aether itself made of particles or not? Indeed, such an aether can eliminate the 'action at a distance' problem in a more concrete way, but it does not answer the question of what it is itself composed of. In this vein, microbits act as a bridge between no-aether and aether. Since everything is made of microbits and there are a lot of them, the interactions that occur among microbit composed structures at various sub-atomic levels eliminates action at a distance, without resorting to the illogical notion of virtual particles, because there is actual contact being made at the level of the smallest particle, which is the microbit. A field comprises of microbitic particles that are not just bumping into each other aimlessly, but creating differentials and gradients (e.g. gravitation) or their pressure forces.

[29] Ibid., pp. 142-143.

A MULTIDIMENSIONAL ERROR

Prior to the 19th century, space was seen as three dimensional in which objects existed. The whole abstract notion of multiple spaces, curved space etc. developed in the 19th century after Nikolai Ivanovich Lobachevsky (1792 – 1856) who developed the mathematics of non-Euclidean Geometry. János Bolyai , known for his work in non-Euclidean geometry and Lobachevsky also were precursors to Georg Friedrich Bernhard Riemann (September 17, 1826 – July 20, 1866). Riemann was a Student of Johann Carl Friedrich Gauss (30 April 1777 – 23 February 1855) who had pioneered but not published his work on non-Euclidean geometry first. William Kingdon Clifford (4 May 1845 – 3 March 1879) of Clifford Algebra fame, now the leading superior mathematical technique to supplant traditional Vector Algebra, and used extensively in graphics to produce video games, was the first person known to have postulated the curvature of space as a hypothesis for gravity. Riemann further developed these ideas. Einstein used non-Euclidean mathematics with the help of mathematician Hermann Minkowski (June 22, 1864 – January 12, 1909) to 'solve', for example, the action at a distance problem.

The curvature of space, in turn led to the positing multiple dimensions, as the physicists tried to tackle the problematic nature of the gravitational force based on mathematical equations by treating space as a "fabric". This material, it was thought, could have many dimensions. Indeed, it started to be assumed over the course of the 20th century that many dimensions were needed to unify the forces; these dimensions were described by analogies. Theodor Franz Eduard Kaluza (9 November 1885 – 19 January 1954) and Christian Felix Klein (25 April 1849 – 22 June 1925) tried to expand the dimensions of space in order to solve Einstein's field equations to unify all of the forces. However, there was no evidence of a fifth dimension! These theories were subsequently dropped but resuscitated later on with string theory. So far no one has seen any other dimensions or proven their existence. Even if they did exist, by definition they would not be part of our

universe and hence unprovable. The whole notion of other dimensions is wrongheaded and is a way to escape some fundamental problems. As such, the whole venture is turning out to be ridiculous from a logical perspective and it is predictable that this whole deck of cards will eventually come crashing down.

Professor Richard Ellis states in a candid article for *Scientific American* that:

> All in all, the case for the multiverse is inconclusive. The basic reason is the extreme flexibility of the proposal: it is more a concept than a well-defined theory. Most proposals involve a patchwork of different ideas rather than a coherent whole. The basic mechanism for eternal inflation does not itself cause physics to be different in each domain in a multiverse; for that it needs to be coupled with another speculative theory. Although they can be fitted together, there is nothing inevitable about it…. Nothing is wrong with scientifically based philosophical speculation, which is what multiverse proposals are. But we should name it for it is.[30]

There is, in addition, often a confusion between multiple dimensions in terms of variables and actual hypothesized multiple dimensions. The former relates to the number of unknowns in the physical sciences, whereas the latter specifically refers to existential spaces. *The two must never be confused.* What this means is that the former is a fact of life, but the latter does not exist!

[30] Ellis, George E. R., (August 2011). *Scientific American*, "Does the Multiverse Really Exist?", pp. 38-43.

Chapter 2

THE SOLUTION TO GRAVITY: EXTENDING NEWTON'S LAWS

The weak and strong forces are easily explained by microbit theory: The quark interforce in an atom is made up of essentially microbit groups (quarks) that have a stickiness that forms the nucleus of an atom while the ensemble collective adhesive force is the strong force. At some level, (we hypothesize at the level of the smallest particle, the microbit),[31] there is actual contact and sticking

[31] All particles are surrounded by microbit-comprised smaller particles except the microbit itself. Take for example the hydrogen nucleus containing quarks. We theorize that quarks are both comprised of and are surrounded by smaller particles, which in turn are surrounded by and comprised of still smaller ones (presently undetectable, as they are much smaller than the electron and photon). At some level, the penultimate particle is surrounded by the microbits. The microbits are last in the line of particles in the chain from large to small, and their motion and innate stickiness is what 'glues' things together by dynamic collisions, imparting momentum and also recoil of the object of collision, due to the stickiness of the microbit. The degree of momentum and recoil inflicted on the larger particle that the microbit contacts and surrounds, is governed by the relative sizes of the microbit and the object it is colliding into, that has an effect on its speed of collision and other factors such as spin. Such motion eliminates action at a distance in a concrete way. At the micro-level, space is an extremely crowded place, though at our macro-level it appears exceedingly spacious! According to this theory, it is natural that quarks should have particles surrounding them and interacting to produce cohesion. In modern physics these are called gluons (though the details of how these move are different in microbit theory). According to microbit theory, the gluons in turn may have other yet smaller particles surrounding them and are themselves comprised of smaller particles, and so on. In a sense then, the universe is comprised of particles that are essentially microbits which collide, thereby producing a balance of forces,

when the microbits collide, thereby producing a balance of forces, where the intercollisions produce a net force at each instant that maintains a motion of equilibrium between clumping and repelling. We do not know how many levels in the quark we may have to go down before we reach the smallest particle, that is, the actual microbit, since the microbit is so small. The weak force is nothing but the disintegration of microbit packages due to instability conditions in the environment or in the object itself, that breaks the equilibrium. But how are we to account for the gravitational and electromagnetic forces? The basic problem in physics is action at a distance. Consider the following question: Why do electrons repel each other? It is said that they do so is because they exchange photons. But why is there an exchange of photons? In conventional physics there is no answer for this, save mention of disturbance in the field which gives rise to 'virtual

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But how are we to account for the gravitational and electromagnetic forces? The basic problem in physics is action at a distance. Consider the following question: Why do electrons repel each other? It is said that they do so is because they exchange photons. But why is there an exchange of photons? In conventional physics there is no answer for this, save mention of disturbance in the field which gives rise to 'virtual particles', a concept we will be critiquing later on in this chapter. According to the microbits view, however, none of the four forces would occur if there is no contact made between the microbits, at the level of the microbits themselves. In this view, the repulsion between electrons is based on the same principle as the attraction between 'gravity particles' that we call g-particles (instead of gravitons, in order to avoid confusion with other contemporary models of physics that hypothesize such an object). What is this principle though? The basic principle is that each subatomic particle is itself surrounded by the unit microbits or composite microbit particles. Whether an object is attracted or repulsed depends on the nothing but groupings or clustering of microbits. We see an amazing analogue of this clustering in the way the stars are clustered in the macro- domain, up to superclusters of galaxies.

particles', a concept we will be critiquing later on in this chapter. According to the microbits view, however, none of the four forces would occur if there is no contact made between the microbits, at the level of the microbits themselves. In this view, the repulsion between electrons is based on the same principle as the attraction between 'gravity particles' that we call g-particles (instead of gravitons, in order to avoid confusion with other contemporary models of physics that hypothesize such an object). What is this principle though? The basic principle is that each subatomic particle is itself surrounded by the unit microbits or composite microbit particles. Whether an object is attracted or repulsed depends on the distribution, contact and dynamics of the microbits surrounding the interacting objects in question. Let us tackle gravity, by discussing the problem first and then a solution will be presented.

THE PROBLEM: GRAVITY AND THE QUESTION OF INFINITIES IN CALCULATION

Where does physics stand today? Stephen Hawking explains very cogently that:

> Having obtained one renormalizable theory for the strong interactions and another one for the weak and electromagnetic interactions, it was natural to look for a theory that combined the two. Such theories are given the rather exaggerated title of "grand unified theories" or GUTs. This is rather misleading because they are neither all that grand, nor fully unified, nor complete theories in that they have a number of undetermined renormalizable parameters such as coupling constants and masses.[32]

[32] Boslough, John, (1985). *Stephen Hawking's Universe*, p.129

He states that in order to see that the electro-weak theory is unified with the strong force, one needs greater energies than are present in laboratory experiments:

> If one extrapolates the low energy rate of increase or decrease of the coupling constants, one finds that the two coupling constants become equal at an energy of about 10^{15} GeV.[33]

The next generation of reactors will only be able to produce energies of about 100 GeV.[21] However, how would one be able to unify gravity?

One promising candidate had been N=8 supergravity that has twenty-eight spin-1 particles: These are sufficient to account for the gluons that carry the strong interactions and two of the four particles that carry the weak interactions, but not the other two. One would therefore have to believe that many or most of the observed particles such as gluons or quarks are not really elementary as they seem at the moment but that they are bound states of the fundamental N=8 particles.[34]

It ought to be noted that what Hawking is saying here is a statement that unknowingly touches on the borders of microbit theory. More importantly he states that:

> There ought to be something very distinctive about the theory that describes the universe. Why does this theory come to life while other theories exist only in the minds of their inventors? The N=8 supergravity theory does have some claims to be special. It seems that it may be the only theory:
>
> 1. which is in four dimensions [if we call 'time' a dimension; but it is not really a dimension as such, and so in reality there are just three spatial dimensions plus time]
> 2. incorporates gravity.

[33] Ibid., p. 129.
[34] Ibid., p. 136

3. which is finite without any infinite subtractions.[35]

By four dimensions Hawking is including time as a dimension, but as the previous chapter explains, time is just a measure of motion and decay/growth in three-dimensional space. Hawking explains that the arguments as to why it makes good sense for a universe of two space dimensions not to exist is that it would have made the existence of complex organisms impossible. On the other hand, having more than three spatial dimensions would have caused orbital instabilities of planets and electrons.[24] (The main point is that three dimensions makes sense for existence; it is to be noted that one, two and more than three dimensions are mere abstractions, in any case, and cannot really exist). However, since Hawking's address, delivered more than three decades ago, due to problems of renormalizability, some physicists have gone on the wrong track to concoct elaborate theories that are based on multiple dimensions and abstract mathematics that try to evade the problem of infinity. The problem of infinity arises because contemporary physicists are not looking at reality in terms of visualizing concrete actions; the whole venture has become an abstract exercise in mathematical gymnastics and, because unlike the microbit view, in which the question of inifinities does not even arise, their models are based on conferring to microscopic properties the attributes of the macroscopic domain, in the sense that the inverse square law is thought to act to the level of the very small (point-like particles) whereas it is not being realized that it is an approximation of an ensemble of reactions taking place at the *sub- submicroscopic* realm.

What most physicists are ignoring is that we will not get infinities at submicroscopic levels of the microbit itself, because these inverse square law equations do not apply at that level, which is the level of actual contact. The universal gravitation equation – an

[35] Ibid., p. 137

inverse square law equation – is only valid for macroscopic objects, that is, vast assemblages of microbits interacting with each other, due to differentials (as shall be explained in detail) and particles larger than the microbit itself (that is , the larger particles are groupings of microbits). Indeed, as there cannot logically speaking be *action at a distance*; contact is being made between the microbits, and there is no infinity involved as described by the contemporary equations. Self-interaction between microbits or microbit assemblages does not produce infinite energy because energy itself is nothing but a measure of the effort required to pull apart or put together the microbits, and the microbits, which are small and yet not infinitely small, are not subject to the mathematical formulae developed for ensemble behaviour, which is based on an inverse square law. For this simple reason, one can bring two microbits together without creating or needing infinite energy. However, since the property of microbits is adhesion, splitting them apart in some configurations requires an enormous amount of work (i.e. energy). Similarly, even the adhesion of microbits and subsequent stability requires specific conditions and human created fusion (nuclear fusion) would not be an easy matter – however, we are not plagued by infinities.

We can see that the 'infinities' problem then, is indeed the central one in trying to come up with an adequate model for uniting gravity with the other forces where:

> *…self-interaction* is at the root of all difficulty encountered in attempts to formulate a quantum theory of gravity. It is possible, for example for two gravitons to exchange a third graviton between them, even while the original gravitons are being exchanged between similar particles. With multiple graviton exchanges brought into the picture, it soon

> becomes horrendously complicated, as we can understand by looking once again at the implications of the Heisenberg uncertainty principle.[36]

However, as we have discussed, the real problem is that certain erroneous concepts are leading to unnecessary impasses that physicists see as real impasses; they are based on wrongly directed models and assumptions, which naturally tend to bring about infinities. For example, "… a single electron can emit and reabsorb virtual photons [and these] processes produce a contribution to energy, and hence the mass, of the electron … leading to infinite mass, by calculations…" and dividing both sides of the equation they can side-step infinities, where "To make this still somewhat dubious procedure look respectable, it is dignified with a fine-sounding name – renormalization." [37]

Similarly, in quantum gravity, infinities arise when a quantum field process comprises a closed loop. According to the contemporary theories, with gravitons interacting, one would get infinities that would have to be divided by infinities. This process is indeed a very artificial one. Using supersymmetry, which then postulates the existence of other particles, e.g. with the gravitinos, one can cancel out the positive infinities with the negative infinities, produced by the gravitinos. The basic problem is that infinities arise since messenger particles with higher energies start to congregate nearer and nearer to particles of matter. Consequently, in this approach to physics, infinite quantities arise, as no limits exist to the proximity of messenger particles to the particles of matter from which they emanate. However, since the source particles are, in standard theory, mathematical points with zero size (another

[36] Davies, Paul and Gribbin, John, (1992). *The Matter Myth: Dramatic Discoveries that Challenge Our Understanding of Physical Reality*, p. 241–242.

[37] Ibid., p. 244.

abstraction with no basis in reality!), no limit exists to the energy of those messenger particles that are nearest.

In the book *The New Physics*, edited by noted theoretical physicist and writer Paul Davies, it is stated that if a model for gravity were based on gravitons, then such gravitons would scatter and interact with each other according to the non-linear term that would be obtained when a particular equation is substituted into the Einstein's field equations. These non-linear terms arise as an intrinsic attribute of general relativity, and also because *all* energy produces a gravitational field, including the energy within the gravitational field itself![38] Attempts at using gravitons have thus been plagued with non-renormalizability (i.e. they cannot seem to cancel out the infinities). It has also been suggested that one of the prime equations used in the calculations, that is:

$$I = \int 1/x^n \, dx; \quad n \geq 1$$

should use the lower limit Lp (i.e. a cut-off at Planck length) when integrating. In other words, the integration should be from Lp to n, instead of from 0 to n. The reason is that if the distance is zero in the above equation, one gets infinities, but if it were a fixed length, then it would avoid the dreaded infinity.[39]

Due to the divertive path taken by physicists, some have developed a model called string theory. This is an attempt to circumvent the existence of point particles by extending them into strings:

> At low energies the strings move about as if they were particles, and so mimic all the qualities that have been described so successfully by the standard theories for decades. But as the energy rises to the level at which gravitational forces start to become

[38] Isham, Chris, (1989). "Quantum Gravity", *The New Physics*, Cambridge, Cambridge University Press, pp. 83 – 87.
[39] Ibid., p. 85.

> important, the strings begin to wiggle, and thus drastically modify the high-energy behaviour in such a way that the infinities are quenched.[40]

We can see that the route that has led to the phantasmagorical string theory has been taken because of false assumptions and a basically incorrect theory of 'matter and energy' based on the utterly fictitious conception of point particles. This latest attempt will not, therefore, solve the problems, namely, the mass-cum- energy fluctuations, as two 'point' particles get closer to each other, due to the 'uncertainty principle'. Here we have a good example of a muddled view, where both $E=mc^2$ and the uncertainty principle, as espoused by the camp of Niels Bohr, the indeterminists, and which has come to dominate physics, are used to draw erroneous conclusions. This is because string theory is trying to solve a self- inflicted problem of an abstract and artificial model of the universe, by getting even more abstract, even though the basic idea of the unity of 'forces' is correct, by smearing out a point into a line. [41] These theoreticians hope to solve the whole problem that destroys the renormalization process, but in the process they seem to be smearing out reality.[42] Recently, it was also shown that the inverse square law holds down to 218 μm, and that no deviations from Newtonian physics[43] were found, as were surmised by some theoreticians holding on to

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[40] *The Matter Myth*, p. 255.

[41] Von Baeyer, Hans Christian, (1999). "World on a String", *The Sciences,* p. 12.

[42] The microbit model, we believe, lies behind the standard model of subatomic particles and not supersymmetry, based on strings.

[43] Hoyle, C.D. et al, "Submillimeter Test of the Gravitational Inverse Square Law: A Search for 'Large' Extra Dimensions", Physical Review Letters, p. 1418.

string theory which postulates extra dimensions at small scales. This test ruled out the large extra dimensions hypothesized. Though such abstract mathematical models may be useful in many aspects of operational calculations, (and indeed this is a blessing, for it has given us a lot of our technology) they do not adequately explain the unity of the integrated universe and the basis of reality, and, furthermore, would lead to a lack of progression or slowdown in such knowledge at a later stage because of impasses and wrong connections. Today's mathematicians and physicists must realize that an infinity is like a headache. If you have it in a theory you know that there is a problem in the basic ideas, just as a headache is symptomatic of a more fundamental problem occurring in the human body!

GRAVITY BY MICROBITS

According to the microbits model, gravity is explained by the difference between the amount of interaction of the microbit-comprised particles that surround and penetrate an object at different levels from the surface of the Earth, to take an example. This is because every macroscopic object has g-particles (that is, particles made of microbits) surrounding it, and the density of these g-particles decreases as one moves away from the surface of an object. In other words, there is a differential in the density of g- particles as we move away from the surface of the Earth (to use the Earth as an example). The density variation creates the inverse square law. This means that one has more density and more g-particles (which themselves are comprised of a combination of a specific number of microbits) acting on an object at a lower altitude above the earth's surface than at a higher altitude and since there is a differential, an object in this differential field would get pulled towards the earth (i.e you would feel weight). However, if two objects of differing sizes were dropped then they would fall at the same rate as our

instruments tell us, because the rate of change in the g-particle density is increasing as you get closer to the earth's surface and the objects, being in the same gravitational field, would experience the same rate of fall because of the same *difference in the difference* between the microbits impinging on both objects. This is discussed in detail from pages 72 to 74, of this book.

HISTORY OF THE PROBLEM: ACTION AT A DISTANCE

By way of introduction, to give the reader a flavor of the problems at hand, concerning gravity: The problems with current explanations of gravity are concisely summarized by physics researcher Miles Mathis:

> Gravity has long been the greatest mystery in physics, and it still is. For Newton, gravity was a force at a distance. This was inherently mysterious, as he admitted, since there was no causal mechanism. Einstein provided gravity with a new mathematics, but he also failed to provide a mechanism. Einstein denied that gravity was a force at all; for him it was simply a new geometry curved space. This was novel, except that it failed to explain how mass curved space. The mechanism was still missing, force or no force. Some contemporary physicists believe that gravitons may be the force-carrying particles, but they have no theory to explain the force at a quantum level. Not only have they been unable to find a quantum mathematics that includes gravity, but they have utterly failed to explain (or even to attempt to explain) how trading particles can mechanistically cause an attractive force. A repulsion can easily be explained by bombardment, for instance; but attraction is impossible to explain in any analogous way. As an example, if you throw nerfballs at a balloon it will move away. But try getting the balloon to move toward you by doing anything with a nerfball. The balloon and you can absorb or eject

> nerfballs in a billion different ways, but none of them will make the balloon come to you.[44]

The microbits' explanation of gravity overcomes all these problems and we shall be discussing this in this chapter. In order to really unify physics we ought to understand "action at a distance". In fact, one of the primary reasons why physics is not united is because of the blatant neglection of the problem of action at a distance. This problem is like the proverbial bull in a china shop that has been forgotten by everyone. Though it may be surprising to most people, according to contemporary mainstream physics, nothing really touches anything else: There are forces and fields and it is these fields that 'somehow' repel or attract – the repelling or attracting being governed by mathematics and symbols, where there is a gap, denoted by the term "action at a distance". The renowned philosopher of science, Mary Hesse, until her recent demise at age 95, was the Professor Emeritus at Cambridge. She wrote a whole book in the subject called *Forces and Fields* [45] that has now become a classic; however, most modern day physicists who are mostly engrossed in and protecting sacred cows like Einsteinian relativity and/or live merely in the pragmatic concerns of simply earning a decent living working for corporations to test and/or produce products, are oblivious to this fact. In reality, the action at a distance problem is so glaring for any rational person not deluded by modern day physicists and their icons, that it is in actuality embarrassing. It is like having built a house on quicksand. There is mass confusion, literally and socially, where some theorists have started to say that there is no such thing as gravity, or that gravity comes from other dimensions, or is connected to the holographic principle, curved space, spinors, or a host of other theorizations. The

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[44] "The Third Wave A Redefinition of Gravity" by Miles Mathis. Website: http://milesmathis.com/third.html

[45] Hesse, M.B., *Forces and Fields*, Greenwood Press, Publishers, Westport, Connecticut.

advocates of each position range from flat-earth believers to famous contemporary physicists in mainstream educational institutions. The problem is that no one is really going back to the foundations and addressing the action at a distance problem! The mathematical Emperor has no clothes, but who has the guts in mainstream to become an academic martyr and point out the exquisite visibility of the invisible cloak? Hesse explains at the very outset of her book that:

> In this book, I have traced through the history of physics some of the problems clustering around the question: 'How do bodies act on one another across space?'[46]

Newton had intimated that he left it up to his readers to determine how his phenomenological theory on gravitation, actually worked:

> It is inconceivable that inanimate Matter should, without the Mediation of something else, which is not material, operate upon, and affect other matter without mutual Contact…That Gravity should be innate, inherent and essential to Matter, so that one body may act upon another at a distance thro' a Vacuum, without the Mediation of anything else, by and through which their Action and Force may be conveyed from one to another, is to me so great an Absurdity that I believe no Man who has in philosophical Matters a competent Faculty of thinking can ever fall into it. Gravity must be caused by an Agent acting constantly according to certain laws; but whether this Agent be material or immaterial, I have left to the Consideration of my readers.[47]

Newton, in his letter to Boyle in 1679 added a mechanical suggestion concerning gravity. Mary Hesse elaborates:

> This is a hydrostatic theory depending on variations in aether density, somewhat like the earlier theory of Roberval. …Newton thought there must be some physical of gravity still to be found, and it was quite inconceivable

[46] Ibid., p. 1.
[47] Newton, Isaac, (1692). *Letters to Bentley*, p.3.

> to him that 'inanimate brute matter should, without the mediation of something else, which is not material, operate upon and affect other matter without mutual contact.' Again, 'It is absurd to suppose that gravity is innate and acts without medium, either material or immaterial.'[48]

Most if not almost all physicists at any level are ignorant of what happened in the history of physics. Physicist Burniston Brown states that the certain inexplicabilities of explaining mechanical reasons for cause and effect, led to a drift towards the inordinate usurpation of mathematics over physics:

> It soon became evident, however, that the ether must be assumed to have properties very unlike those of known material substances, and thus arose the temptation to treat it in a very general way without attempting to describe its exact mechanical action. This was possible because of the invention of the term energy, which was, of course, quite unknown to Newton. The mathematical function potential, which later became potential energy, was invented by Lagrange solely to make calculations from Newton's law of gravitation easier. Later the function kinetic energy was added,* and also action. With the help of these functions, mechanical problems can be dealt with in a very general way, without a precise consideration of forces, positions and motions at every instant.[49]

Burniston also raises the astute point in the same paper[50] that physics split for the most part into experimentalists and theoreticians, unlike in the past where one person encapsulated the expertise in both facets. This has led to a degradation of both areas.

Newton's formulations *mathematically* explained certain results accurately but did not provide a physical mechanism. For those who are in a reactionary way turned-off from Einsteinian relativity and also Newtonian mechanics and think that the gravitational force is

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[48] Ibid., *Forces and Fields*, p. 152.

[49] Brown, G. Burniston, (1956). "Have we abandoned the Physical Theory of Nature?" p. 623. Brown_SciProg_v44n176(1956)619-634 (naturalphilosophy.org)

[50] Ibid., p. 631.

electrical/magnetic in some way, you can see *pure* gravity in action through rocks, by referring to these binary asteroids rotating about their centre of gravity that has nothing to do with electrical/magnetic aspects, or forces induced by plasma etc. But how then do we explain this elegant 'magic'?[51]

ENTER EULER

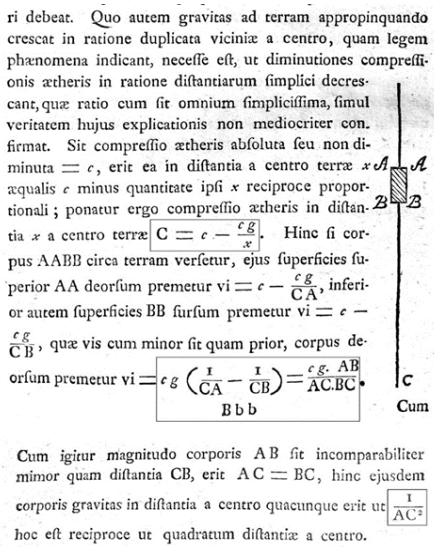
I have spoken to a number of mainstream physicists about some unification problems, but they remain adamantly entrenched with the approach of contemporary physics. I have, furthermore, stated repeatedly in my works, co-authored (with M. Muslim) and singularly written, that the solution to gravity will not be found using the approaches of quantum mechanics, ever, and neither will it be found using General Relativity (GR), GR not being able to solve many existing problems in cosmology, not being unite-able with quantum mechanics and based on curved spaces etc. that do not in reality exist, but have become institutionalized like the Ptolemaic theory had been institutionalized for millennia. As one of my Canadian mathematician friends (Dr. Gary Miller) said: "If you catch the wrong train, every station you get off will be the wrong one".

Swiss mathematician, Leonhard Euler (1707-1783) is considered among the top mathematicians ever to have existed and is in the august company of Newton, Gauss and Jacobi and of more recent fame, Poincare and Ramanujan. His work is used in engineering, applied and pure mathematics and was instrumental in validating Newtonian Mechanics in the 75 years since Newton's death. Euler considered Newton's approach to be absolutely correct, and like him, did not believe in fairy tales such as 'action at a distance' – he was rational in this respect of thinking deeply about nature. Therefore, he surmised that

[51] http://apod.nasa.gov/apod/image/0011/antiope_merline.gif

there is an ether (or basic fine, very tiny particles) quite different than particles that comprise matter. In relation to the Earth, the density of these ether particles and hence their pressure increases as one moves away from the centre of the earth. In this way, any object in this 'field' of ether particles would experience a greater pressure from above than below and hence fall downwards towards the earth. He derived the inverse square law from that. Physicist Mayeul Arminjon states in his paper that:

> Moreover, Newton did not assume that the attraction at a distance, which he was postulating in his theory, did exist as such in the physical world: "[I] use the words attraction, impulse, or propensity of any sort towards a centre, promiscuously, and indifferently: one for another; considering those forces not physically, but mathematically: wherefore the reader is not to imagine that by those words I anywhere take upon me to define the kind, or the manner of any action, the causes or the physical reason thereof, or that I attribute forces, in a true and physical sense, to certain centres, (which are only mathematical points); when at any time I happen to speak of centres as attracting, or as endued with attractive powers. In fact, he considered that his phenomenological attraction force might possibly result from the pressure of an "aether" (I did read some careful sentence by him in this sense, but could not find it again), though he did not develop this idea. [40] But *Euler* did imagine a definite mechanism for gravity and did describe it at length, [4, 5] although that work of Euler



ri debeat. Quo autem gravitas ad terram appropinquando crescat in ratione duplicata viciniæ a centro, quam legem phænomena indicant, neceſſe eſt, ut diminutiones compreſſionis ætheris in ratione diſtantiarum ſimplici decrescant, quæ ratio cum ſit omnium ſimpliciſſima, ſimul veritatem hujus explicationis non mediocriter confirmat. Sit compreſſio ætheris abſoluta ſeu non diminuta $= c$, erit ea in diſtantia a centro terræ x æqualis c minus quantitate ipſi x reciproce proportionali; ponatur ergo compreſſio ætheris in diſtantia x a centro terræ $\boxed{C = c - \frac{cg}{x}}$. Hinc ſi corpus AABB circa terram verſetur, ejus ſuperficies ſuperior AA deorſum premetur vi $= c - \frac{cg}{CA}$, inferior autem ſuperficies BB ſurſum premetur vi $= c - \frac{cg}{CB}$, quæ vis cum minor ſit quam prior, corpus deorſum premetur vi $= \boxed{cg\left(\frac{1}{CA} - \frac{1}{CB}\right) = \frac{cg.\,AB}{AC.BC}}$.

Bbb

Cum igitur magnitudo corporis AB ſit incomparabiliter minor quam diſtantia CB, erit $AC = BC$, hinc ejusdem corporis gravitas in diſtantia a centro quacunque erit ut $\boxed{\frac{1}{AC^2}}$ hoc eſt reciproce ut quadratum diſtantiæ a centro.

> is not well-known.[52]Euler stated: Those who attribute gravity to an attractive force of the Earth base their opinion mainly on the fact that otherwise no origin could be displayed for this force. But since we proved that all bodies are surrounded with ether and are pressed by the elastic force of the latter, we do not need to search elsewhere the origin of gravity. Only if the pressure of the ether would be everywhere the same, which assignment is indistinguishable from that of its equilibrium, would the bodies be equally pressed from every side, and thus would not be induced in any motion. But if we assume that the ether around the Earth is not in equilibrium, and that instead its pressure becomes smaller as one comes closer to the Earth, then any given body must experience a stronger pressure downwards on its superior surface than it does upwards on its inferior surface; it follows that the downwards pressure will have the advantage and hence that the body will really be pushed downwards, which effect we call gravity, and the downwards-pushing force the weight of the body.[6]

Euler derives gravity based on his pressure differentials or gradient and shows it to be based on the inverse square law arising from the surroundings and not innately in the body itself, using the concept of subtle particles (ether) as described above that have pressure differentials.

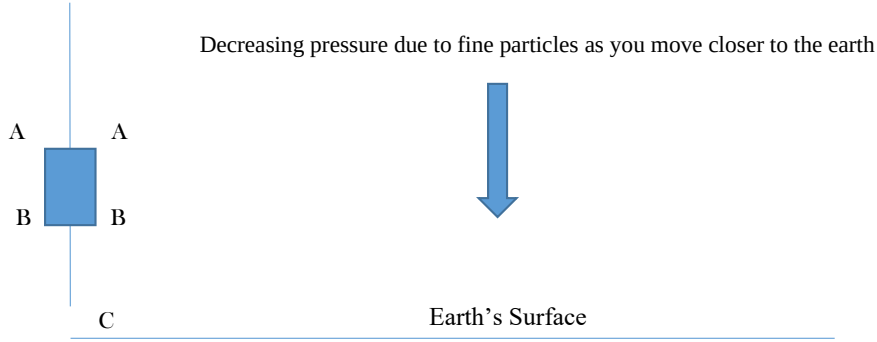
We shall later on discuss his motivation for this solution. But first, this is how he derives his result. He explains:

> *Let the absolute compression of ether (when it is not lessened) be denoted c. And let the distance from the center of the Earth be equal to c minus a quantity reciprocally proportional to x. And so let a compression of the ether in distance x from the centre of the Earth be equal to c minus a quantity reciprocally proportional to x. And so let a compression of the ether in distance x from the center of the Earth be C= c – cg/x. From*

[52] Arminjon, M. (2004), "Gravity as Archimedes' thrust and a bifurcation in that Theory", *Foundations of Physics*, 34(11), 1704.

this, if body AA BB is in a position around the Earth, the surface of it above AA will be pressed downwards by force = c –cg / CA, moreover the surface below BB will be pressed upwards by a force c – cg /CB, which force, since it is less than before, the body will be pressed downwards by force = cg(1 /CA – 1/CB) = cg.AB/(ACBC).

And so if the magnitude of body AB is incomprehensively less than distance CB, we will have AC = BC, from this the gravity of such a body in whatever distance from the center will be as $1/AC^2$ [if you call AC=Radius (r), then this is $1/r^2$], *this is reciprocally as a square of the distance from the center.* [53]



Euler's diagram re-drawn

Here are a few notes to make it easier to understand the equation Euler used:

1. Note that in the 'compression of ether' equation, in other words, the pressure of particles, as they impinge on any object in their 'field'

[53] Klyve, Dominic, (2009). "How Euler Did It", *MAA Online*, December Issue, Editor: Ed Sandifer. http://www.maa.org/sites/default/files/pdf/editorial/euler/Dec2009.pdf

which is denoted by C, increases if x, the distance from Earth's centre, increases. Euler essentially sets up a pressure gradient.

2. Euler states: the body will be pressed downwards by **force = cg x (1/CA – 1/CB) = cg x AB/(ACBC). If AC = BC** then the denominator **"ACBC"** becomes **AC times AC which equals AC^2**.
3. How is the inverse square law related to gravity, through this analysis? It is through the formula: **F = GM1 x M2/r^2 (Eq. 1)** and since **F = M1 x g (Eq. 2),** g, or the acceleration due to gravity, also has the inverse square law in the form: **g = GM2/r^2, (Eq. 3)**, since if you equate Eq. 1 and Eq. 2 and isolate for g, you get Eq. 3.

But is that *really* what gravity is? The calculation is absolutely correct, but the interpretation is erroneous. We will, in this article, show the correct interpretation and use the same mathematics to illustrate the inverse square law being applied to the actual mechanical causation of gravity for the first time. However, in order to understand what gravity really is, we must journey into the world of 'microbits'. It will be evinced the microbit is the foundation, anchor and most fundamental component of and in creation.

THE MICROBITS' CONCEPT OF GRAVITY: OUT OF 'OUT-OF-THE-BOX' THINKING

Although no one, to the best of our knowledge, before the original publication of *From Microbits to Everything Volume 1* (on physics) had come up with the total systematized unitary particle idea for unification there were and are directions towards it, namely, Abdus Salam and Jogesh Pati pursued a subquark model, Hidezumi Terazawa has been considering it for decades and has written extensively about a subquark model for which he sees a necessity and evidence in recent

experiments[54], to bring explanatory coherency to the findings by positing the existence of subquarks, and in fact has recently published a book on this[55]. In 2012, the *Scientific American* magazine published an article wondering about the existence of subquarks, and they posed the question: how far does it go, in terms of the compositeness of particles[56]? Lastly, Canadian philosopher John Leslie had mentioned in passing, in his book *Universes*, concerning the possibility, that the universe was comprised of one type of particle[57]. In 2018, I contacted him about the work my colleague and I had done over the past two decades (since 1996 when our research began) and asked him about this fleeting mention in the book and he responded in a personal communication (on April 1, 2018):

> Thanks for getting in touch, Nadeem. I think you have in mind my section 4.21, at the top of page 76, where I wrote that ".. 'symmetries' can mean elegant likenesses between various forces and particles: forces and particles which, when the symmetries break, come to seem radically distinct or at best only distorted reflections of one another. Symmetries of the earliest times may actually have amounted to identities (compare how the photon ' is its own
>
> Antiparticle') so that originally there was just a single force and a single particle kind. Domains produced by symmetry breaking might differ widely in the varieties of force and of particle which had come to exist in them." ...Note that talk of "a single particle kind" is sometimes replaced by

[54] Terazawa, H. (2011), "Unified Supersymmetric Composite Model of All Fundamental Particles and Forces", *High Energy Physics in the 21-st Century*, High Energy Accelerator Research Organization (KEK), KEK Preprint 99-46. This was presented at the 22nd International Workshop on Fundamental Problems of High Energy Physics and Field Theory, Protvino, Russian Federation, 23 - 25 Jun 1999.

[55] Terazawa, H., (2018), *Quark Matter: From Subquarks to the Universe*, Nova Science Publications Inc.

[56] Lincoln D., (2012)," The Inner Life of Quarks", Scientific American, 307(5), 36-43.

[57] Leslie, J., (1989), *Universes*, Routlege, New York.

saying that there was "just a single particle" but that this is typically taken to MEAN just one KIND of particle; however, Gamow developed a Big Bang theory in which there was indeed just one big particle originally (he may have called it a single bit 'ATOM', but if he did, then presumably NOT with the idea that it had an atomic nucleus surrounded by electrons). It is not THAT sort of theory that I am discussing. When I say that "THE photon is its own antiparticle" I mean that there are not two KINDS of photons; I am not saying that there is, or that there was at the time of the Big Bang, only one photon in the universe. Nowhere in my book "Universes" is there any discussion of any theory like that of Gamow. But I think you could say that the theory that there was originally just a single KIND of particle could open the door to the speculation that there was originally only one particle, as Gamow suggested.

All the best: John Leslie

Lastly, I was in contact with the late Thomas Phipps, for many years. He was the author of *Old Physics for New*[58] who was a profound dissident physicist with mainstream credentials (from Harvard University). Among the many interesting conversations we had, which I hope to publish in the future, he was adamant that Special Relativity and General Relativity were incorrect, and saw it as having become akin to an irrational religion which is unquestionable (i.e. blind faith). He knew of the microbit model, espoused by M. Muslim and me, and was interested in reviewing it. He never commented on what he thought of it, but did comment on my battle to show the fallaciousness of Einsteinian Relativity. He stated as much, in a personal communication to me (on May 23, 2012):

Dear Nadeem,

I am impressed by your determination to get at the truth. Such people tend to lead unhappy lives, as they are a great nuisance to people who already

[58] Phipps, T.E. (Jr.) (2012). *Old Physics for New: A worldview alternative to Einstein's relativity theory*, Apeiron, Montreal.

> know the truth -- these being in all times and places in the overwhelming majority. I can only wish you obscurity, as the alternative will merely qualify you for martyrdom. …
>
> Good luck in your struggles.
> Best, Tom.

I summarized the approach in a recent letter to a close friend later on regarded as a leading theoretical and applied mainstream physicist internationally, who in the mid-1980s, was doing his PhD at one of the top universities in England (King's College London); at that time he was heavily involved in 'supergravity', and I told him in 1984 that maybe his whole approach will be seen to be incorrect (which turned out to be true!):

> The microbits are in absolute objectless space that pre-existed the Big Bang. So space was not created with the Big Bang. All particles we see, including quarks, photons etc. are not elementary particles; they are comprised in turn from grouping (clusters) of microbits. It is at the microbit level that actual contact is made, thereby resolving 'action at a distance'. Attraction and repulsion arise from net forces of pushing and pulling when microbits collide because the microbit possesses three properties 'stickiness' (because they were all co-joined in the Big Bang and have this property), spin (actual spin in three dimensions) and compressibility. So although regular cause and effect do apply at the microbit level, the rules at that level are not simply mutually exclusive elastic or inelastic collisions but a different set of collisional rules because of the three properties I outlined. At the higher emergent level we then get gravity. This can be modelled based on geometry, but it will only be a model (and so long as it is considered as a stop-gap model I have no disagreement with such developments); but underlying everything, we (Muslim and I) claim are these 'microbits'. If and when we do find out that the quark is splittable, then I think this will be leading towards our view, but I don't expect this to happen any time soon due to the energy levels required; at this stage we can only speak on the logic of this system and some experiments pointing to determinism (which

this view is based on)! Here, actual motions in absolute space occur and mathematics serves as a tool to understand these motions and not the other way around.

I also placed a comment to the MIT online journal (but received no counter comment):

Gravity is due to the mechanical (yes mechanical!) interaction of unit particles (I call them microbits) that emerged from the Big Bang and essentially form a residual field around particles up to a cut-off point. As I discussed in my co-authored book "From Microbits to Everything" in 2001, and a subsequent article in 2011, all our so called fundamental particles are composed of groupings or clusters of microbits. This means for example that the quarks are themselves comprised of subquarks (call them what you like) and these subquarks are in turn comprised of other 'particles'; but it does not go on forever (for logical reasons); at the end you have the microbits. So is gravity emergent or not? Yes and no. First the 'Yes' part: the effect of gravity is produced by trillions upon trillions of microbit comprised particles interacting with each other in a rule based way (i.e. there are three basic properties that lead to both pushing and pulling (the key solution)). So all particles that have themselves particle fields around them exert gravity. The 'No' part is that on the more macro level it appears that it is not emergent because we can apply Newton's equations (inverse square law etc.). General relativity, for example, or Newtonian physics do not solve the action at a distance problem (GR is only a geometric theory) but since contact is made at the microbit level, the action at a distance problem is resolved by 'microbitic physics'. Physics is headed to this direction and once it is discovered that quarks are not fundamental elementary particles, all hell will break loose and there will be a drive towards the microbits paradigm, which is THE reality. It will take time but I am sure it will transpire.

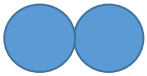
I believe the 'geometric approach' (General Relativity) is a provisional one because I have been writing and working in this area of unification from a philosophical and historical perspective (seeing what the

problem is with trying to unify physics) and have come to the conclusion that in the end, only a mechanistic solution will unify physics. This is a view where action at a distance is resolved without recourse to curved space etc. The mechanistic solution has to, however, adequately explain attraction by a *single principle* that then applies to all levels (strong force, magnetism, Van Der Waals forces, other bonding forces and gravity), the details being different. The naturalness of the explanation of the microbits, arising from the Big Bang, demands actual fields for gravity and not curved space. These particles are not detectable at present due to their size (i.e. the particle that makes up gravity which I call the g-particle, is a composite of microbits of course but extremely tiny to be detectable)! However, with pure logic, we can determine how the constituents of the g-particle interact with objects in space, which is depicted from pages 72 to 74, and the associated explanation.

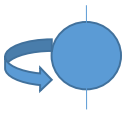
CAUSAL MECHANISM FOR GRAVITY: HOW THE INVERSE OF EULER'S SUPPOSITION WORKS

We will now show that Euler calculation was correct and the principles behind the calculation were correct, but he did not have the correct overall solution in terms of the mechanics; there is a major twist. We will show the causal mechanism for gravity and the reason for the inverse square law, both mathematically and mechanistically, without action at a distance. But to understand this fully, we need to discuss microbit properties and dynamics: It is postulated that microbits (the first particles that emanated from the Big Bang) are perfectly spherical and have three basic properties:

Compressibility



Stickiness (Fusibility)



Spin

These three properties produce the motions below:

In the case below the pull is greater than the push as denoted by the length of the arrow: The secret of attraction, the only possible, logical/viable, mechanical basis is: The blue particle in Fig. 1 is that which is, for example, found in the gravitational field. The red particle is a microbit that comprises an object in the field – for example it is the lowest level constituent of a macro object such as a brick (made of atoms/protons etc./quarks/subquarks…down to the microbits' level). The law of elastic and inelastic collisions does not apply here at the basis level (that only applies at the higher level due to gravity which emerges from the microbit level). The repulsion or attraction, normally taken as 'positive' or 'negative' charges therefore has a motional and physical basis, which it must logically have.

We must not think of microbits as billard balls – that is an incorrect understanding. On the macrolevel, we have such 'hard' objects as a truly emergent phenomena built up from the submicroscopic realm. At the same time, we must not make the fatal error that the universe is *not* made of particles. Besides, from various probing techniques (e.g. a quantum-like microscope) it has been confirmed that atoms (spherical ones) and their orbitals (electrons) exist. Imagine that if we had a powerful enough special microscope that could probe even further, all the way to the microbit level, all we would see is the motion/interplay and grouping of microbits in absolute space. The reader will note, from my description of microbits, that these foundational particles have unique properties that give rise to *all* physics at the higher levels. Compressibility, stickiness and spin work in concert, in an integral way to produce all groupings of microbits and their motion, stability, or instability. Note: The push (A) or pull (B) shown by the large arrows could be equal or pull could be greater than push or vice versa; that is a matter of detail. Here, it is shown that the pull (B) is greater (by the longer arrow length).

To really understand what gravity is let us examine Figure 1. Figure 1 exhibits what happens when microbit A, that is moving fast relative to microbit B, that is almost stationary, collide with each other. The X

particle is a microbit associated with the gravitational field particle (the 'g particle'). There is movement depicted by arrow A, in one direction, then the microbit compresses (in 2). It gets fused temporarily with microbit B and also compresses and then in a rebound moves the other way, dragging microbit B with it. The distance moved by the hit (large arrow A) and there bound (large arrow B) 2 may not be the same: distance b is greater than distance a (so the net distance moved is (b+a-a = b). The motion due to arrow B has carried the particle further to the right a distance b. The reason for this is because as X decompresses, its motion is to the right (it is rebounding). If one used a supercomputer (to which, not surprisingly, I have no access!) and modelled this motion using trillions upon trillions of microbits acting in trillionths of a second, you would get acceleration due to gravity (i.e. a macro object falling down) due to this 'net directional contact field'! Anyone who has access to such a computer can try building a simplified model of the motions I am asking and realize that this works. Or this can be done on a low-budget computer and then speeded up as animation! This is essentially how gravity works. If one has an object in such a field, which we can call the microbitic field, the object in the field (a banana, apple, elephant etc.) interacts with the particles that make up the field. At the microbit level, a tug-of-war takes place based on the principles above, and the net result is that the macro object (that is comprised of quadrillions upon quadrillions of microbits structured as atoms at the higher level) falls down to the earth (i.e. is attracted based on the inverse square law) based on the above motions. This happens so fast and with so many of these particles that only the net effect counts. The action shown by arrow A is as if it never occurred; in other words, it is as if only the motion B occurs, incessantly, and continuously pulling the object down (in Figure 1, this is shown sideways). This satisfies Newton's supposition that if it is a material agent it has to act constantly.

Figure 1

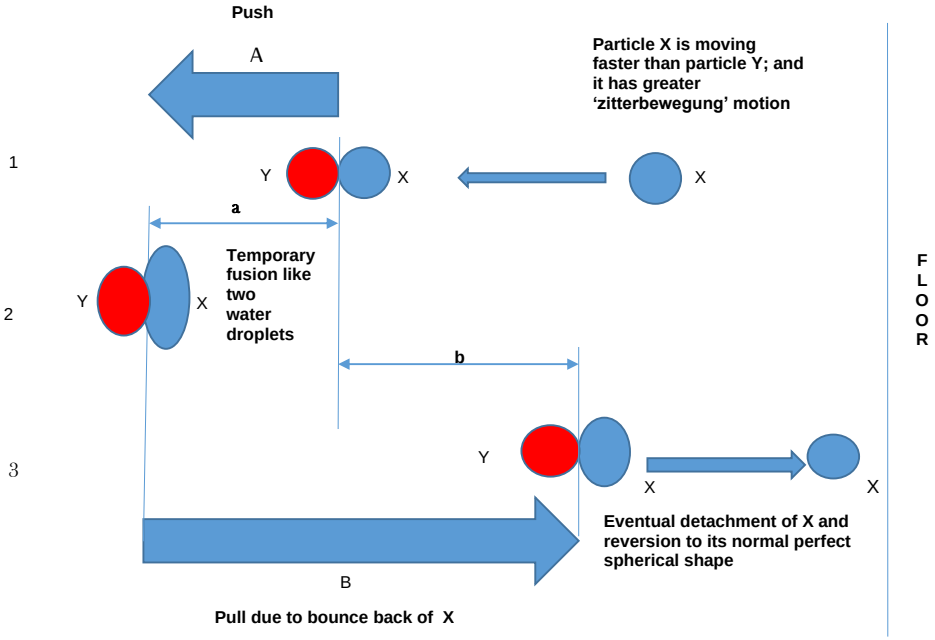


Figure 2

The microbit distribution of gravity particles (particles comprised of microbits (I am not calling them gravitons to dissociate from mainstream physics concepts),

. . . . . .
. . . . . Net result – object falls (attracted) to the earth – i.e. pulled by earth's gravity.
..... Here the density of particles decreases with increasing distance from the earth's centre.

Figure 3

is the inverse of Euler's concept:

.....
. . . . . Euler's version of the distribution of the 'tiny particles' – increasing
. . . . . in density with height from earth's centre.

Figure 2, illustrates how the g-particles are aligned; the farther away from the Earth, the less the number of g-particles. However, this is the

opposite of what Euler was claiming. Nonetheless, using the principle of action in Figure 1, because there are more particles closer to the Earth and they interact as shown in Figure 1, the object will, of necessity, move downwards. This is the inverse of Euler's supposition, shown in Figure 3.

In summation you have the situation:

> Net 'force' (at lower submicro-altitude) [Downwards] > Net 'force' (at higher submicro-altitude] [Upwards] – so this causes acceleration due to gravity (g)

Hence, because of this, the object (the brick) moves downwards – what we call "falls" as anyone who has had the misfortune of falling off from a roof would know and appreciate (if he or she survived)! This is gravity and is normally recounted as acceleration due to gravity. Essentially, the net result is as per Euler's treatment; the principles are the same, but the mechanism is different and more naturalistic in terms of how objects in the universe coalesced after the Big Bang, where gravity is a residual left over and surrounds each macro object as it forms that is comprised of particles, above a certain grouping level of which g-particles form that particles gravitational gradient. The g-particles (gravity particles comprised of microbits) are attracted to already dense conglomerations of matter but do not clump up – they collide with the surface but form a field around it. The field's density decreases in a natural way. The coalescence process is analogous to crystallization (i.e. what happens when things 'cooled own'). Since the net result is the same, Euler's derivation holds. Euler appeared to have worked backwards – he thought that if an object is attracted then the particle (ether) pressure would increase from the surface of the body like the Earth. But there is no natural reason for such an odd distribution of ether particles.

Understanding the causes for attraction without action at the distance, is the ultimate explanation of gravity. As a result, there is no curved space and no need for General Relativity; Newtonian Mechanics

can be used in all its principles and we see that Newton Mechanics captures the motions accurately as a phenomenological approach, for which now a mechanism has been discovered. In situations of extremity in speed or density etc., the principles are the same. We just have to understand microbitic mechanics more, that is all!

The problem in human thought that has led to us not realizing the above solution can be seen in the consideration of elastic and inelastic suppositions in defining particles: If particles were rigid then they were considered inelastic, but if they were considered elastic then they were seen as being deformable and if they were deformable, then they are "not truly atomic." In considering the mechanistic view, these were the thoughts of the pre-20th century physicists, limiting as they are by their needless and irrational impositions. It does essentially boil down to what exactly is the microbit and why does it exist? It exists because the Big Bang lump was homogenous in its structure and 'exploded' homogeneously and every explosion has a first instance of bits. Due to the homogeneity and the symmetricality of the 'explosion', the first instance of the 'splitting' were equal sized particles – the first particles which we call 'microbits'. Why did the Big Bang come into existence? These questions have been answered by this author and M. Muslim in Volume 2 of the *From Microbits to Everything* series[59].

The properties and rules of the microbits are based on cause and effect, but they are fixed rules and the solidity and other properties yield an intelligible and tangible universe. The problem and tragic irony essentially is that the 'materialists' do not even understand what is 'material' and if they cannot, then they cannot be led to a deeper *mechanical understanding*, a foundational understanding, a unificatory understanding, and the distinction between space and the microbit (i.e.

[59] Haque, N., & Muslim, M., (2007). *From Microbits to Everything: Universe of the Imaginator: Volume 2: The Philosophical Implications*, Optagon Publications Ltd., Toronto.

the quasi-partitioning of space into spherical 'particles'). Rather than impose thought from the macro level, one has to see how the microbit must be structured to yield the results at the higher level, from the very foundations.

In summation: Euler said the opposite of what we are claiming is the solution to what gravity really is as his pressure distribution is the inverse of our solution; whereas we are claiming the g-particles that cause the pressure to be decreasing from the surface of the earth (or anybody up to a certain level of particle grouping), Euler is saying the opposite. But because of the properties of microbits, that is, the microbit dynamics creates force resolutions where the net downward forces would be greater than the upward forces, the derivation employed by Euler, therefore, is valid and works for 'microbits'.

EXTENDING "NEWTON'S THREE LAWS" BY TWO MORE

Microbits are the simplest and most elegant solution to the unification of physics and in one stroke unify physics. There is indeed nothing simpler than one type of particle and absolute space out of which the universe has been created. To re-iterate: if one thinks logically, when the Big Bang lump exploded in pre-existing objectless space (in the microbit view, space was not created with the Big Bang, it was always there, and why always has also been discussed in the previous work on this subject[60]) there must have been the first component of the split (there has to be!). Since the 'lump' was symmetrical and there was one force that split it, then it split into equally sized unit particles, which we have termed 'microbits'. This is indeed the most logical outcome.

The three properties of the microbits are:

[60] Haque, Nadeem, (2014). "The Ultimate Reality Sustaining the Universe", *International Journal of Philosophical Physics*, 1(1), IHR Publications.

I. Stickiness (because they were all united (fused) in a singularity' (the Big Bang lump) and split, so they have a natural original stickiness or fusion property.
II. Actual spin/angular momentum in three dimensions and not abstract spins. These originated from the get-go, i.e. the Big Bang explosion.
III. Compressibility (squashability).

These are what I call the three Ss: Stickiness, Spin and Squashability. The speed of a microbit particle is influenced by its spin (because the rate of spin tends to slow down the linear motion). The contact dynamics which form the Principle of Action for attraction, whether it occurs in the quarks (strong force), magnets or gravity are the same. This is the reason for inverse square laws in gravitation and electromagnetism and why they are quite analogous to each other. The general principles/laws are as follows, and I will 'christen' them **Microbit Dynamics Laws (MDL)** as an Extension to 'Newton's' Three Laws of Motion:

1. If two microbits collide at equal speeds there is an equal rebound, or fusing, depending on the speed.
2. If a microbit or higher groupings of microbitic particles that we can call particle X is relatively stationary in relation to a microbitic particle or another grouping of microbitic particles called Y, there will be three possible types of motion upon collision depending on the speed of collision of the incoming microbitic particle:

   Repulsion: For repulsion, the net push is greater than the net pulling.
   Attraction: For attraction, the net pulling is greater than the net pushing.
   Clumping: Microbits join and remain together.

The speed of collision determines how the stickiness and squashability interact between two colliding microbits and since the

contact speed between a slow moving and a fast moving microbit is asymmetrical, unlike case number 1, we enter into effect number 2 of the MDL[61].

[61] **Electron Repulsion**

There is a possible explanation for electron repulsion using the microbit model, verifiable through experimentation. The first is a radical departure from standard explanations: To follow on from an analogy, say that a block is an electron and the men are microbits, and let us say that you have men who push a block A, 3 feet west and then zero feet east and another group of men who push block B, 3 feet east and then zero feet west. The net result is that both blocks are now 3 feet west and east respectively, in regards to their original positions – a total of 6 feet apart.

As far as electron repulsion goes, consider two electrons coming in proximity to each other. As two electrons (i.e. A and B) are brought together, the activity of microbit movement surrounding each electron increases, especially at the sides P and Q (where they face each other). However, the opposite happens here in contrast to gravity, because the two electrons are equal and the interactions at P and Q are also equal. Furthermore, when a microbit collides with an e-particle (which comprises an electron), it imparts a momentum in one direction (3 feet west in our analogy) and then as it retracts it pulls the electron the other way (zero or a few inches east). However the initial momentum in one direction (the push) is greater than the pull (3 – 0 = 3) and this is why the two electrons are repulsed. It is this pulling and pushing of the surrounding microbits or their composites that causes electron repulsion; however, the principle of momentum and retraction (given the stickiness factor of microbits) remains the same. It is just that in the case of gravity, as discussed above, the pull is greater than the push. We shall be considering the validity of such collisional motion in terms of elastic and inelastic collisions..

The net effect is a repulsion: When the two large spheres (electrons) are brought close to each other, the smaller particles surrounding them (the smaller spheres) collide and retract by momentum, the collision pushing the spheres away being greater than the pulling of them together by the recoil of the smaller spheres. *If a gravitational field is permeated by an electromagnetic field in the right way it will cause a change in the existing gravitational gradient of the g-particles. What that right way is, still needs to be determined by experimentation.*

As the reader will note, this explanation of electron interaction radically differs from the current ideas: In the classical theory of electrostatics, the inverse square law is described in field language by saying that the charge e1 creates an electric field of force around it, and the charge e2 interacts with that field at a point a distance *r* away. It is the interaction between e2 and the field that produces the force. If e1 were disturbed in some way, the effect of this would be transmitted to e2 through the field, and e2 would respond accordingly. In quantum theory [however] … the disturbance .. [is] .. in the form of photons. When e1 is moved, it emits photons which are subsequently absorbed by e2, causing it to move also. The electromagnetic force is therefore described in terms of the *exchange* of field quanta, acting rather like messengers, between the sources.

In contemporary physics, the force that causes repulsion is a virtual particle that arises from an electron and then is re-absorbed by another electron. It is assumed, by such a motion, that the problem of action at a distance is resolved. Since the law of conservation of energy is violated by the emergence of the virtual particle, physicists claim that the violation

Cause and effect are inviolable, but the nature of cause and effect is dictated by this level and assumes the form of cause and effect that we observe at higher levels which is different, such as the rules of elastic and inelastic collisions. At the level of the microbits these inelastic and elastic distinction and rules do not apply and are emergent properties that apply to larger groupings of microbits that we are today considering are elementary particles and the composite of these (what we see and call matter).

But these are all set by that which is independent of the particles; the rules are all set by an animate force that preceded the creation of the universe and is the cause of the universe. There had to be such a force and the proof was given in a book and paper published by this author

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occurs in a timespan so short that it is not measurable. This energy, it is further claimed, is 'borrowed' and repaid quickly without anyone knowing about it and that, therefore, no real violation occurs. This argument, however, is very illogical: If we do not measure something, it does not mean that it does not exist, and yet this is what modern physics would have us believe, based on quantum mechanics. In terms of this type of 'borrowing', it is a relief that modern physicists are not in charge of enacting social laws, for if the same logic were used, I should be able to legally withdraw someone else's funds from a bank without the account holder or anyone finding out and then re-deposit them, likewise, back into the account without anyone finding out!

With microbit model we do not postulate the emergence of virtual particles out of the blue. According to the new model that is being proposed, the reason why electrons repel each other, based on an inverse square law relation, is because each electron is comprised of smaller particles and the repulsion occurs due to the net contact and dynamics of the collisions of the microbits themselves. The net result of these collisions is a repulsion of the 'electron'. Since the density distribution of the microbits and other composite particles drops with distance from the electron's surface, we see the force that we do, in both electrostatics and electromagnetism.

Electron Orbits

The electrons orbit the nucleus for the same reason as the planets orbit the sun. Essentially, the nucleus of an atom is surrounded by smaller microbit comprised particles whose density decreases as you move away from the surface of the nucleus. The electron is held in orbit because its own microbit particles' field interferes with that of the nucleus and because of the same reason that an object is attracted by gravity (the 'gravitational gradient' as explained above) it is pulled towards the nucleus. However, the force is not so great as to pull it completely into the nucleus and its free motion to break away from nucleus capture is balanced by the pulling microbitic force working in the differential microbit field and the result is that the electron orbits the nucleus at specific distances from the centre of the nucleus. In essence, every nucleus sets up a *micro*-gravitational gradient, like a planet's gravitational field (and gravitational gradient) and an electron becomes a satellite.

and his colleague a few years ago that can be referred to[62]. With respect to the mechanical reason for attractive forces: To achieve this end the forces have to be designed so that there is a balance (neither pull nor push but clumping), or net pull in either one or in the other direction. This means that the 'stickiness' of microbits, or their potentiality to 'stick', fuse or co-join, has to have an utmost precision. If it is too strong, then all the microbits would get lumped up. If it is not strong enough, then we would not have the effect that is required for attraction, and we would have only repulsion and hence no gravitational attraction, stickiness of everyday things, magnetic attraction, etc. Hence the importance of the precision of the 'inherent surficial stickiness of microbits'. An analogy: consider the fact that the company 3M developed 'sticky notes'. 3M experimented as to which type of adhesion to use: if it was too sticky, then it would be hard to peel off the notes; if not sticky enough, they would just come off too easily. An optimal stickiness had to be achieved and was obtained, which we are all now the beneficiaries of.

We can see now that Euler was on the correct path to determining exactly what gravity is, but he was missing some key ingredients. This approach will only start to be realized once we get to the stage where we realize that all these particles: quarks, electrons etc. are not fundamental/elementary particles, but are comprised of smaller particles and those too, are comprised of yet smaller particles all the way down to the elementary microbit level itself, where contact is made and where there is no action at distance.

In essence, the Principle of Action also applies to magnetism. In this case, we have to take spin into consideration. In a magnet, the 'field' of particles at the 'north' pole is spinning in a particular direction. So if a 'north' pole of a magnet encounters another 'north pole' the

[62] Haque, N. & Muslim, M., (2011). *New Proofs for the Existence of God (Part II): The Cosmological Applications of the Sesamatic Proof*, Scientific GOD Journal, Vol. 2, Issue 2.

orientations of their spin would interact with the particles that comprise each opposing magnet using MDL. Depending on the interaction of the spins of the particles with the mutually opposing magnet's particles, either attraction or repulsion will arise, depending on the orientation of the spins from both magnets. That is because the direction of spin matters and its direction and actual collision at the microbit level with the microbits that comprise each opposing magnet will alter the speed of collision and this will result in either the net pull being greater, or the net push being greater. If the net pull is greater, then the magnets will attract and vice-versa. For the total magnet, that means either attraction or repulsion from the opposing magnet. The strong force is also held together by the same Principle of Action for Repulsion or Attraction (PARA).

SOME CONSIDERATIONS

Euler did not think or consider that the pressure/density of the 'ether' would decrease away from the body in question. However, he did think of gravity as a pressure force rather than action at a distance, to be logical. He thought of this as the solution to gravity, because only a net force downwards would produce attraction, and showed that the inverse square law can be deduced from first principles according to this scheme. In the microbits model, however, we showed that gravity is a pressure force based on the distribution of miniscule particles that are themselves comprised of microbits, the fundamental indivisible particle – the terminus point – but that the rules have been set up so that the PARA occurs. These rules are logical and consistent, and they lead to fixed further rules of a different nature at higher (more macroscopic levels), that we call 'laws'.

Microbit concepts try to go to the root of what matter and energy is. It is not a model, as such, but an attempt to understand how things really are and therefore an attempt to get to a description and laws (motions) of what really happens in absolute space. My dictum is that: Unless one

can explain the actual motions in absolute space we do not understand what is really going on, or our explanations may be completely wrong. This is not naïve realism, but the truth; those who do not hold onto this dictum (99% of mainstream physicists, misplacing the true function of mathematics) are actually what I would call the naïve abstractionists. The physicality of the situation must be explained and all other theories fail to meet the mark and beg the question. There is, of course, no harm in using analogous concepts to explain aspects of microbits, (and indeed it may be most instructive), so long as we do not consider these analogies as reality. An example is the liquid drop model for nuclear fission for example, which helps to explain the interactions of nuclear particles.

THE DEMISE OF THE CONCEPT OF THE EXPANSION OF SPACE

The concept of curved space also influenced trying to explain the expansion of the universe as the expansion of space itself. However, you cannot have your cosmic cake and eat it as well, but most Einsteinians would have you engage in such gluttony on a very foundational matter in cosmology. They themselves have debunked the expansion of space *with* matter without debunking the concept, in another article, in *Scientific American.* This sounds paradoxical but the reader should read on to realize what is meant. In the article, the whole notion of space as a 'fabric' that is expanding with matter from the Big Bang is shown to be impossible, because it violates the conservation of matter and energy. This fact was not highlighted in mainstream publications and journals because certain notions that reify space as stretching etc. are being clung on to dogmatically in conventional institutionalized fundamental physics. The editors of *Scientific American* summarize the situation:

> The universe appears to be expanding, as if space itself were getting stretched out. In consequence, the electromagnetic waves that compose

> light get stretched as well, shifting, in the case of visible light, toward the red part of the spectrum (*below*). Photons of longer wavelength have lower energy, so logic dictates that each photon must become less energetic as it travels toward us. But does the universe as a whole lose energy? The total energy of the photons in the universe cannot be calculated, but one can in principle calculate the energy contained within an imaginary membrane that expands in concert with the universe (*at right, the region inside a membrane is represented as two-dimensional*). Photons can enter or exit through the membrane, but the uniform density of space tells us that the number of photons in the enclosed region will roughly stay constant. Because each photon in the region becomes less energetic as space expands, this calculation suggests that the total amount of photon energy in the region and, by implication, in the rest of the universe must be going down.[63]

The fact explained above is the case because if the conventional Friedmann–Robertson–Walker ("FRW") model is used, in which space is supposed to expand with matter, then the question that arises is that as space expands, the photon's energy is lost. But then the question arises as to where this energy goes. In other words, if space itself is expanding, we see a loss in the energy of a photon – it simply vanishes. This violates the conservation of matter and energy. The author then takes the unusual step to advance the correct idea that it must not be the case that space expands, but that expansion takes place *in* space which resolves the problem. The dispersion of photons from the Big Bang therefore occurs *in* space, analogous to sound waves in the Doppler effect of a police siren, for example. However, the implications of this are far greater than what is mentioned in the *Scientific American* article and stares at us blatantly like an elephant in a china shop, with no one looking at the elephant but still busily engaged in shopping. It shows that the current conventional cosmological model is incorrect and that

[63] Davis, Tamara, (July 2010). *Scientific American*, "Is the Universe Leaking Energy?", p. 34.

the Big Bang occurred *in* space. Note that the current Friedmannian model is only one of several options that could have been chosen, not that there is proof of *space* expanding with matter. Unfortunately, the physicists, decades ago, chose the wrong option; as has been said by one recent thinker: "If you catch the wrong train, every station you get off will be the wrong one"[64]. How many wrong train stations will be passed by, before the 'scientific community' gets off the train which is headed toward a steep cliff to fall into the cauldron of ignominy?

Faced with the problem of the false concept of the 'expansion of space' the author says:

> The point is that our metaphor of the expanding rubber balloon, though useful to visualize the expansion, should be taken with a grain of salt: empty space does not have a physical reality. As galaxies recede from one another, we are free to consider this relative motion as "expansion of space" or "movement through space"; the difference is mostly semantics. The amount of redshift seen in the galaxy turns out to be identical to the Doppler shift the observer would see in a car that is receding at the same relative velocity [*see box above*]. This happens because in small enough regions the universe makes a pretty good approximation of "at spacetime". But in "at spacetime" there is no gravity and no stretching of waves, and any red-shift must just be a Doppler effect. So we can think of the light as making many tiny little Doppler shifts along its trajectory. And just as in the case of the police car—where it would not even occur to us to think that photons are gaining or losing energy — here, too, the relative motion of the emitter and observer means that they see photons from different perspectives and not that the photons have lost energy along the way.[65]

The above explanation makes sense but goes against the prevailing (incorrect) view of the expansion of space itself. So, one cannot prevaricate and equivocate and hold two opposing viewpoints which are mutually exclusive: which one is going to go into the proverbial

[64] My friend, the mathematician: Dr. Gary Miller, aka, Abdul Ahad Omar.
[65] Ibid., *Scientific American,* "Is the Universe Leaking Energy?" p. 38-39

trashcan of ideas? Are we still going to claim the expansion of space when there is such a contradiction of a basic law of physics? Or did particles from the Big Bang explode in pre-existing space which creates no problems and is akin to the Doppler effect? Does space expand with matter after the Big Bang, where we have this fundamental problem? Do we calculate using the no stretching of space and still maintain that *space* is expanding or do we, being honest with ourselves and as logic and evidence would demand, drop the idea of the expansion of *space*? Here it appears that one is desirous of having one's cosmic cake and eating it as well, and perhaps, in pursuing such a culinary path, one might be beset, in time, with indigestion of cosmic proportions.

In the Microbits' view, only particles are ripped/split apart from the Big Bang and not space and there is a centre to the expansion. Space is infinite in all directions and had no particles – it is an eternally pre-existing particleless space. The FRW model is sometimes called the *Standard Model* of modern cosmology. It was developed independently by the named authors in the 1920s and 1930s. This is only an optional model which provides solutions to Einstein's equations based on the *assumption* that space is tied to matter etc. However, the fact is that the universe can be perfectly explained with models that have a centre of the universe. These solutions, now known as Lemaître-Tolman-Bondi (LTB) models, provide solutions to Einstein's equations as well. This is not to agree with general relativity but only to show that the wrong model itself can be modelled, in part, differently!

GALACTICAL ROTATION: THE SOLUTION FOR THE OUTLIER STELLAR VELOCITY ANOMALY

A theory of gravity based on the microbit model, as described, has implications with respect to other motions such as galactic rotation in spiral galaxies such as our own. Based on conventional Newtonian Mechanics, applied to spiral galaxies, such as our own, and as one applies it to the solar system, one should expect that the velocity of stars far from the centre of the galaxy, for example, should have

velocities that are lower than those near the centre, as the velocity is inversely proportional to the radius from the centre. However, in the rotation curves (i.e. velocity curves) of stars, one does not see this trend – the velocities of the more outlying stars are unusually high. If we apply the microbit theory of gravity, the reason why the velocities are unusually high for the 'outliers' is because all these stars are falling towards the centre at a higher rate than that dictated by the Newtonian relation R (radius) from the centre of galactic rotation – that is, they have an acceleration that does not drop with an increase in radius R, because the nature of the g-particle density pattern spread across the disc-like galaxies would diminish from the centre of the galaxy, producing differential forces leading to the similar magnitude of inward acceleration of each star that would not lead to a decrease in velocity. This would lead to non-decreasing velocities (a flat rotation curve), and one would not need any 'dark matter' (i.e. the missing mass) halos interpenetrating such galaxies, to explain the higher velocities to satisfy the equation, here put in terms of acceleration, where R is the distance from the galactic centre through which we are measuring acceleration:

$$GM/R^2 = V^2/R$$

$$GM/R = V^2$$

In our case, the 'dark matter' is just gravity, which, we are saying, is comprised of particles and not curved space or 'action at a distance', and these particles 'behave' in a particular way and have particular properties as described in the book. Where there are more stars, there are more g-particles and the net effect of the distribution of g-particles contributed by each star in the galaxy determines the rotation curves. *And it is not a simple inverse square relationship anymore.* If one recalls, as one moves away from the surface of the earth, the g-particle density drops. The force on objects in this field is a result of differentials. Similarly, all stars, of course, also have their own individual g-particle gradients. Furthermore, all objects in the

universe are interconnected, and all stars in the galaxy are interconnected like an intricately woven fabric. The interconnectivity occurs through the g-particle gradients, in the sense that, for example, stars are in clusters because of mutual gravitational attraction. Their g-particles are intermeshing. Obviously, the more the stars the more the intermeshing. This means that the sun is affected by a g-particle gradient itself from the other stars. The sun, in other words, is being pressured or forced or is falling into the centre of the galaxy with a certain acceleration, but is prevented in doing so, because it has a straight-line tangential motion as well, that is a remnant of the motions set off and continuing since and because of the Big Bang.

The reason why the inverse square law works for the solar system, but not for stellar rotation is because the g-particle density drops and from this, obviously, one derives the classical inverse square law relation for forces between two objects. In other words, *decreasing* velocities result as we move out away from the sun as per the inverse square equation, in consonance with the equations derived by Newton, Kepler et al, that stipulate the inverse proportionality relationship between radius, R and velocity. Since, however, the Newtonian equations are based on "action-at- a-distance", there has been no consideration that underlying all this could be gravitational gradients, comprised of particles that produce the differentials that we have described in this book. Although there is a tremendous amount of 'stuff' to be found in our galaxy, given our assessment using the new gravitational theory based on microbits, which essentially deals with the nature of the gravitational field in terms of particles within the disk itself, we do not believe that the massive halo exists, in terms of cold dark matter, or other forms of dark matter.

In December 2020, 19 years after the above view was provided on the rotation of galaxies, in the first edition of this book (*From Microbits to Everything:…Volume 1*), it was discovered that MOND (Modified

Newtonian Gravity, initially proposed and developed by physicist Mordacai Milgrom) has predicted what no dark matter model could and there is now increasing evidence that MOND yields better predictions for galactical rotation and that interestingly, it intersects with the view of microbits, in that MOND is showing that external gravitational effects impinge on stars in the galaxy, what they are now calling the "External Field Effect":

> While in GR the internal dynamics of a gravitationally bound system is not affected by a uniform external field, our analysis indicates that external fields *do* impact the internal dynamics. Our results are encouraging for modified gravity as an alternative (or modification) to the DM hypothesis and the standard ΛCDM cosmological model. They also highlight the path for future theoretical investigations of relativistic theories of gravity beyond GR (see, e.g., Skordis & Złośnik 2020), possibly leading to a new cosmological model.[66]

This exactly what had been stated and predicted in 2001 in this book but with the proviso that microbits goes into the mechanistic reasons for how gravity works, whereas with MOND we are dealing with data and equations and some modifications of Newtonian physics.

BLACK HOLES

Since microbits physics does not confabulate mathematics with reality in Microbit Physics there is no room for Black Holes in the sense that they do not exist, because Black Holes are predicted by General Relativity (GR), which has been shown to be an incorrect theory with

[66] Kyu-Hyun Chae, Federico Lelli, Harry Desmond, Stacy S. McGaugh, Pengfei Li, and James M. Schomber, (November 20, 2020). "Testing the Strong Equivalence Principle: Detection of the External Field Effect in Rotationally Supported Galaxies." *The Astrophysical Journal*, ApJ 904 51.

no basis. Using GR's mathematics, one arrives at singularities which cannot exist in reality. Nothing can be a point, or infinitely dense etc. – these are mathematical constructs and not existentially possible in space. *However, that does not mean that there are no extremely, extremely, heavy dense stars or groups of stars that affect the galaxy in a major way and have some properties that the proponents would attribute to Black Holes, such as accretion disks.* If this is true then Roger Penrose, great mathematician though he is, has won the Nobel Prize in physics for that which has not been proven to exist. The recent so-called image of a Black Hole is not a photograph but an interpretational built-up picture from data that has to be inputted based on assumptions. Foremost world expert on many aspect of theoretical and observational astrophysics, Wolfgang Kundt does not believe that Black Holes exist and cites eight reasons for his disbelief[67]; he therefore has a skeptical view about the 'discovery' of it. Will the media discuss the eight reasons, sensationalistic as they are and beholden to propping up flaccid icons of yesteryear?!

RECENT EXPERIMENTS ON GRAVITATION

Professor G. Modanese stated in a speech to the 48th Congress of the International Astronautical Federation held in Torino, Italy, 5- 10 October 1997, Dr. E. Podkletnov created "weak gravitational shielding" by a YBCO HTC disk which caused a diminution of *g* (acceleration due to gravity) by approximately 1%. The disk was (14-27 cm in diameter) and *it was spinning up to 5000 rpm while levitating in at temperature of 70 K*. A high frequency magnetic field was applied (up to MHz). The result was a vertical, cylinder like shielded region above the toroidal disk where gravity had been reduced! Unfortunately, since that claimed discovery, the effect has not been reproducible and for political reasons, Podkletnov himself, at the last minute, withdrew Podkletnov's paper, which was

[67] Kundt, Wolfgang, (2005). *Astrophysics: A New Approach*, pp. 108-112.

scheduled to be published in a prestigious scientific journal, even though he did not deny the effect, or change his story on what had happed in his lab.

In his speech, Modanese went on to explain that Classical General Relativity does not explain such effects. He thinks that the effect can be explained by quantum gravity; however, we believe that the effect can be explained by standard mechanics in flat space albeit operating on a smaller scale and level, where the particular stickiness, size, rotational properties of the microbit particles and their assemblages would also come into play. If the g-particles are reinforced by the electromagnetic effects, or their motions altered, then they would exert a greater net upward pressure than before, thereby creating the shielding. We would like to, therefore, at this juncture, suggest the future study of *microdynamics*. In microdynamics, one is actually dealing with actual particles interacting, colliding, dispersing, rotating etc. just as one would on the macroscopic scale, although the properties of microbits would create some differences in detail between this micro and macro level. Any global, geometrical models to explain the collective behaviour of phenomena are just models to explain the actual concrete interactions taking place by and among microbits, and this is why we ought to aim for an explanation using microdynamics.

Physicist Modanese explains further, in an internet report, part of which is quoted below, entitled *Gravitational Anomalies by HTC superconductors: a 1999 Theoretical Status Report (The Gravity Society - www.gravity.org)* that:

> According to General Relativity – our best present theory of gravity– the dynamics of the gravitational field and its coupling to the mass-energy-momentum density which generates it are described by the (classical) Einstein equations. These are non-linear partial differential equations involving the components of the metric tensor and its first and second derivatives. They are similar, under several respects, to Maxwell equations, though more complicated and non-linear.

In very simplified terms, we can say that Einstein equations allow to find the gravitational field as a *response to a source* – linear in a first approximation, or non-linear in the presence of strong mass-energy densities. The proportionality constant between field and source is of the order of the Newton constant G for linear responses and even smaller, of the order of G/c^n, for non-linear responses. There exist static fields and fields propagating like waves, but in any case their strength is related to the mass of the source which has generated them.

The only sources close to us which are massive enough to generate a detectable field are the earth, the moon, the sun and, to a smaller extent, the other planets of the solar system. Any other object or physical system available on a laboratory scale, irrespective of its chemical composition or microscopic structure, generates gravitational fields of exceedingly small strength. These fields can be detected through very sensitive instruments, but they are typically of the order of 10^{-9} g or less (g=9.8 m/s^2 is the field generated by the earth at its surface).

These observations are well known and lead to the conclusion, in full agreement with Einstein equations, that the gravitational field generated by a very massive field is in practice unaffected by the presence of any other body whose mass is much smaller. In particular, it does not seem possible that the gravitational acceleration g at the earth surface can be affected, through any human-sized apparatus, by more than approximately 1 part in a billion.

The conclusion above rests, as mentioned, upon the hypothesis that the equations of classical General Relativity are appropriate to the situation.

It is known that quantum mechanics brings in some very small corrections to the classical equations of any field, including the gravitational field. In the quantum view, the field oscillates in an approximately harmonic "potential"; these oscillations take place around a minimum value corresponding to the classical field strength.

Usually the quantum fluctuations are irrelevant on a macroscopic scale. One can show, however, that the presence in a region of space

of coherent vacuum energy ("zero point energy") modifies the potential in which the gravitational field oscillates. Zero point energy is present in macroscopic systems – that means, systems well above the atomic scale – which are described as a whole by a single wave function. If the zero point energy term was present uniformly in all space, it would not bring any consequence: the gravitational field of the entire space would react exactly in such a way to reset the zero of energy. Things are different, however, if the zero point energy term is present only in a well-defined small region of space; in this case it produces a localized instability …

Another important issue discussed by Modanese is the compatibility between the shielding phenomenon and the equivalence principle:

Imagine a box divided in two sections 1 and 2. Suppose that the lower part of the box, with mass m_2, contains a shielding apparatus, complete with power supply generator and everything. Now let the box be in free fall. If "the shielding is OFF", the acceleration of the box is equal to g.

Then you "turn ON" the shielding, say with efficiency α; this means that the gravitational force felt by the mass m_1 over the apparatus is multiplied by a factor $\alpha < 1$ (for instance, $\alpha = 0.98$). Let us admit that the weight of m_2 itself is not affected.

It is easy to see that in this case the acceleration of the box becomes less than g. This is actually what desired, if we aim at building a flying machine. It means, however, that the gravitational mass and the inertial mass of the box are not equal, any more. And this represents a violation of the equivalence principle.

Note that the box is supposed to be isolated from the environment: it does not expel any jet of air or gas, nor it interacts with any external electric field, etc. In these conditions of free fall, one observer inside the box should experience total absence of gravity. He doesn't, however, if the shielding is ON. He feels some gravity, because its acceleration

is lower than *g*. This, again, shows that the equivalence principle is violated.

If we do not accept the possibility of such a violation, we must admit that the shielding effect does not work like this. We must admit that if the shielding apparatus is rigidly connected to the Earth, then there is effective weight reduction of the samples suspended over the apparatus; but if the whole shielding apparatus is in free fall, then a reaction force from the samples on the apparatus arises, which makes the total weight variation vanish.

This means of course that it is impossible to build a flying machine using the gravity shielding effect. It is still possible however, in principle, to build a "lift".

With microbit theory, however, there is a possibility of, one day, making a flying machine as depicted above, as the artificial constraints of Einsteinian relativity are not there.[68] In such an experiment as Podkletnov's what we think is happening, according to the basic concept of microbits, is that the effects of the cryostat, rotating disk and the electromagnetic field are together producing a reinforcement of the differential in the gravitational field above the disk by changing the g-particle gradient. The repulsion is not emanating from the disk alone but from the magnetic field coupled with the particle behaviour in the rotating disk that is, of course also connected with the precisely controlled temperatures in the cryostat. In effect, the electromagnetic field's density above the disk together with the g-particle density produce a situation where the total gravitational gradient in the localized region is changed, producing a diminution of gravity in the cylindrical region as

[68] G. Modanese hypothesizes in a paper posted on the internet, dated June 15, 1996 and entitled "Theoretical Analysis of a Reported Weak Gravitational Shielding Effect" (which was scheduled for publication in Europhys. Lett.), that the Podkletnov effect may be explainable by "non-perturbative Euclidean quantum gravity."

described by Podletnov. Now, even if it turns out that Podkletnov was erroneous in his measurements etc., or that the whole experiment was fraudulent, what we are claiming, nonetheless, irrespective of the experiment, is that it is possible to use electromagnetic fields in some manner, hitherto not definitively established, to produce even rising objects or objects that move horizontally if one is able to change the gravitational gradient from the normal one that surrounds the region of the earth or planet where the experiment or experimental contraption resides. Microbit theory makes this possible, whereas General Relativity does not. To understand the interference that could occur in the gravitational field composed of microbits, or, more specifically, of the g-particles, one needs to consider electron repulsion.

MORE SUPPORT FOR MICROBITS DUE TO FACTS ABOUT GRAVITY

The late dissident physicist Tom Van Flandern[69] states that:

> The true, instantaneous position of the Sun is about 20 arc seconds east of its visible position, and we will see the Sun in its true present position about 8.3 minutes into the future. [70]

The basic problem with Einsteinian relativity is that if gravity is supposed to be as fast as the speed of light in vacuum, as explained by Van Flandern, the orbit of the Earth would, as a net effect, "double the

[69] Tom Van Flandern was born in 1940 and died in 2009. He was an expert in Celestial Mechanics.

[70] Flandern, Tom Van. (1998). "The Speed of Gravity: What the Experiments Say", as originally published in Physics Letters A 250:1-11 (1998), http://www.ldolphin.org/vanFlandern/gravityspeed.html

Earth's distance from the Sun in 1,200 years"[71]. This fact is swept away and not discussed at universities.

As Van Flandern has astutely pointed out, the rubber sheet analogy of gravity is flawed because the analogy is within existing gravity that bends the rubber sheet. Then if someone puts a ball on it, it will role. But in deep space there's no such gravity and the analogy would not work! If there was a test particle what would make it move? The curved space analogy is therefore nonsensical and there is actually no 'curved space'. Therefore, this type of thinking led to him to surmise that the speed of gravity must be faster that the speed of light in vacuum *(c)*. However, if his approach is like that of Paul Gerber's, or Petr Beckmann's, who calculated perihelion advance like Gerber, but using a shorter calculating method[72], it still poses a problem as to how the attractive force is created. In fact, if gravity emanates through particles from the sun, and travels billions of times faster than *c*, when it 'hits' an object (another planet) which it must logically do, it would cause a repulsion and not attraction! This obvious fact is never pointed out in any exposition of physics I have read or heard so far. Using the concept of microbits, however, the so-called field is omnipresent around planets etc. and has immediate physical action because it is in the immediate space and there is no need for the force to travel long distances to keep planets in check. In fact, there is a misunderstanding that may be influenced by how forces work in the "electric analogy". Where:

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[71] Ibid., http://www.ldolphin.org/vanFlandern/gravityspeed.html

[72] Beckmann, Petr, (1987), *Einstein Plus Two*, pp. 170-175. In a rigorous paper written by Professor Tony Yuan , a physicist at Beihang University in China, it is shown why the gravitational waves' speed and the 'gravitational field' speed are two different speeds, but researchers are mixing these apples and oranges. He also discusses that the solution must be 'physical/mechanical', treatable by mathematics in: "Gravitational Fields and Gravitational Waves": https://www.academia.edu/49344078/Gravitational_Fields_and_Gravitational_Waves_4_1

> We assume (with Einstein and practically every other gravity theoretician) that the same holds for gravity: that if we were able to "dis miss" a mass as we are able to discharge a charge, then the result of this (or any other) modification would reach the field at a distance r only after a delay of r/c, the disturbance of the field traveling outwards with a velocity of c.[73]

Even if a mass were suddenly able to disappear and it were true that g-particles or gravitons set up a field in time r/c, this does not mean that that is how gravity itself works. As described in this book, its mechanism is explained by differential forces that are embedded with and surround the object that is being influenced by the gravity of another body. Whether the parameters that Einstein used to come up with his equation to explain the motion of Mercury were arbitrary/free or not, as has been argued by some physicists is moot, once we realize that the explanation is tautological, and hence the fallacious nature of the so-called proof.

In having looked at this example, it becomes apparent that perhaps a course on philosophy and logical fallacies should be made mandatory for all physics students at university. But then perhaps the physics department will be producing astute and questioning students rather than blind followers, thereby undermining the very basis of their own foundational 'beliefs'!

THE HIGGS PARTICLE AND THE EMPEROR'S NEW CLOTHES: THE PHOTON HAS MASS

If one examines the microbits model: the simplest unificatory model exist-able, one does not need the Higgs particle. Indeed, according to the Microbit Model the Standard Model is incorrect to a large extent because of its incorporation of the Higgs. Not only that, but any extended model based on the same type of 'exchanges' cannot and will never be able to explain gravity which involves directional forces that

[73] Ibid., p. 26.

can only be explained by two things: *contact and pressure.* So any model that really explains gravity through particles must have this *net directional* pressure feature; it must be mechanistic but not of the LeSage type or the type of explanations being sought in the 19th Century, by many. This is the mechanism for gravity explained in this book, in terms of basic principles. In Quantum Mechanics the ascription of a massless photon has been inadvertently borrowed from relativity which we have shown to be logically false. In the microbit model, all particles have mass because the g-particle (I am not calling them gravitons as these already carry a baggage) pervades space as an extension field that evolves/settles after the Big Bang; it is a very small particle and its actions are on other particles as described in this book. It too is comprised of microbits of course and its action on particles that are larger than itself confers mass in the relational way that we have hitherto described. The photon itself, therefore, does indeed have mass as it is affected by the ambient g-particles. What has been found in the LHC is not the Higgs particle that gives mass to everything but what we call 'mass' is the interaction between the stuff in the object and the ambient g-particles. Gravity does not therefore have to travel at speeds faster than light to affect objects; it surrounds them. The microbit model answers Newton's perplexing wonder about the illogicality of action at a distance. It answers why and how attraction mechanically works as opposed to only repulsion.

Concerning mass and the equation $E=mc^2$, it will indeed come more into the general public's purview that Einstein was not the first to formulate this and never had a proof for it and the proof of its validity will come only with a most generalized proof for special case of objects that relate to the speed of light in vacuum that does not resort to calculations through Einsteinian relativity. With microbits this equation is perfectly natural as microbit concepts draw no distinction in essence between matter and energy. The reason for this of course is that everything is comprised of microbits and "mass" and "energy" are simply human classifications due to the type of measurement of the

state in which microbits happen to be, both in terms of motion and groupings. This does not mean that such demarcations are not useful; they are, but the mechanics of what is going on behind the terms "mass" and "energy" are required for clear thinking and advancement. Furthermore, a new energy equation will have to eventually be formulated that will incorporate new terms that will have to include the concept of microbits and particles that exceed the speed of light in vacuum and no causality will be affected. Normal causality will be shown to hold. The ultimate law of conservation will be applied which is that microbits never vanish but are only re-grouped.

BO LEHNERT AND PHOTON MASS

Let us now examine Bo Lehnert's concept that the photon possesses mass. According to Lehnert, whose latest book is entitled *Revised Quantum Electrodynamics*, the photon does have a mass, as we state as well, in the microbits model. This does not mean that the electron does not interact with the photon; it can and does but not in the manner of the standard model which is based on virtual popping up from nowhere and then slipping back into nowhere. Though Lehnert's model is not like that of microbits, there are some strikingly similar conclusions. In a personal email to this writer, he states:

> Many thanks for your interesting and kind comments on the photon mass. I fully agree with the points which you make. Also I have not been aware of the results of your investigations on problems related to the shortcomings of the Standard Model….. I thank you for referring to my investigations. I also agree with you that, with all respect, the Higgs theory may not be the only way to the truth, and that it is a rather complex approach, based on spontaneous, nonlinear interaction in two steps. There have been some doubts expressed on this by G. Veltman and S. Hawking among others.

He remarks in a preamble to his aforementioned new book that:

> In conventional theoretical physics and its Standard Model the guiding principle is that the equations are symmetrical. This limitation leads to a number of difficulties, because it does not permit masses for leptons and quarks, the electron tends to "explode" under the action of self-charge, a corresponding photon model has no spin, and such a model cannot account for the "needle radiation" proposed by Einstein and observed in the photoelectric effect and in the two-slit experiments.

Lehnert's model resolves many issues some of which, he summarizes, are:

> The point-charge-like behaviour of the electron comes out from the theory as a consequence of a nonzero net electric charge. A revised process of renormalization makes it possible for the electron to have finite and nonzero net charge, magnetic moment, rest mass, and angular momentum (spin) and also a finite size and internal structure.

Concerning electromagnetic wave phenomena, Lehnert states:

> The present theory leads to a model of the individual photon which has a nonzero spin. Photon spin and photon rest mass are two sides of the same intrinsic property.
>
> For the individual photon both particle behaviour in the form of needle-like radiation and a wave behaviour in the form of interference phenomena can be realized. This satisfies the necessary criteria for the observed behaviour in two-slit experiments, and it also contributes to the interpretation of such experiments.
>
> For the W, W and Z bosons, a Proca-type equation being analogous to that of the present theory can possibly be applied to the weak field case. This would provide the bosons with a nonzero mass, as an alternative to the Higgs concept.[74]

[74] Lehnert, Bo, (2012). *Revised Quantum Electrodynamics*, pp. 126-127.

In postulating finite sizes and structure for the electron and a mass for the photon, Lehnert is in total agreement with the principles and conclusions of the microbit model, in at least this respect. What appears to be happening in the world of physics is that:

1. The quantum mechanical side has adopted the no mass of photon from Relativity – a theory which we have shown to be false because of internal contradictions.
2. Adopting this false view of a massless photon incorporated into the Standard Model which requires a symmetry of the equations, it has led to a problem in which in order to explain the W and Z particles having a mass, the Higgs field has had to be introduced with the Higgs particle.
3. After the Higgs particle was proposed it had to be found or the entire structure would have to be scrapped or revised intensely.
4. The Large Hadron Collider costing a great deal of funds was built and lots on contractors have made money on this!
5. Desperation set in to discover the Higgs and a lot has been at stake despite high sounding phrases like: "We are seeking the truth" and "It will be good to go beyond the standard model".
6. The discovery of the Higgs was determined in terms of energy level expected.
7. After colliding trillions upon trillions of particles they are identifying one of these particles within that energy range as the Higgs.

HIGGS: A UNICORN IN SHEEP CLOTHING

The whole venture to find the Higgs particle does not seem like mature scientific investigation in terms of logic. To coin an analogy it is as if: In a murder case, the police framed a wrong theory that did not make sense and had holes in it. The theory was concocted by the police chief. A certain person (culprit) with a certain description was being sought. All eyes were on the police's performance: They were having a tough

time finding the murderer. Eventually they found someone who was *almost* the same in appearance and was of the same ethnic background and accent. The police chief then said: "It's as good as catching the real man; and the public won't know!" There was then a press release which stated that: "The dangerous foreign criminal had been finally arrested! Let's celebrate and drink some champagne!"

Therefore, really it appears to be the case that the physics establishment has devised a unicorn of its own making which they, through correlation and causation fallacy, are now identifying with Higgs. Not only has a unicorn been invented but it is erroneously being stated that the unicorn has been found (notwithstanding a Nobel prize being awarded for this unicorn). The media in general knows nothing of the deep fallacious history of relativity (despite the fact that it was they who, historically speaking, collectively propagandized Einstein and relativity without technical reflection). When one becomes enmeshed in ultimately wrong theories they become institutionalized. One has to learn about this from history and not repeat these mistakes which we have repeated twice over the last 100 years with respect to GR and the interpretive aspects of quantum mechanics. And all this tells us nothing about unification or gravity!

Chapter 3

FUNDAMENTAL PROBLEMS WITH EINSTEINIAN RELATIVITY

To highlight and expose the internal inconsistency and thereby sheer falsity of Einstein's Special Relativity, in 1963, Herbert Dingle posed the following problem[75] and challenged any professional physicist or non-specialist to disprove him by publishing the question in the prestigious scientific journal *Nature.* The problem in his own words, was as follows:

> *A* and *X* are twins who separate at birth at a speed *v* such that $1-v/c = 1/5$. Each carries a clock which reads 0 at the moment of separation and thereafter reads the age of its bearer. Ahead of *A*, in the direction of *X*'s motion, and in keeping at a constant distance from *A*, is another child *B*, born at the same moment as *A* in *A*'s and *B*'s common time system and carrying a similar clock synchronized with *A*'s. Likewise, in the rear of *X*, and in keeping at a constant distance from *X*, is a child *Y*, born at the same moment as *X* in *X*'s and *Y*'s common time system and carrying a similar clock synchronized with *X*'s.

[75] Dingle, Herbert, (1963). "Special Theory of Relativity", *Nature*, pp. 1248-1249.

When *X* is 6 years old he passes *B* and they exchange photographs which have just been taken. *B*, and therefore *A*, is then 30 years old according to the Lorentz transformation. Further, when *A* is 6 years old *Y* passes him and they exchange recent photographs. The Lorentz transformation then shows that *Y*, and therefore *X*, is then 30 years old. All assemble later and agree on the evidence of the photographs, that *A* is 30 when *X* is 6 and *X* is 30 when *A* is 6. I call this a contradiction.

Table 1 corresponds to Einstein's statement, with *A* fixed at the origin of the *K* system and *X* at the origin of the *k* system, and we see that *X* ages more slowly than *A*, as he concludes. But we also have Table 2.

Table 1

		X is born	*X meets B*
'Stationary' *(K)* system	t =	0	30
'Moving' *(k)* system	τ =	0	6

Table 2

		A *is born*	*Y meets A*
'Stationary' *(K)* system	t =	0	6
'Moving' *(k)* system	τ =	0	30

Table 2 corresponds to my statement, with *A* and *X* still fixed at the origins of the same systems as before, and we see that *A* ages more slowly than *X*. [76]

Following publication of Dingle's problem in *Nature* the only famous physicist who responded was Max Born. Born could not show that there was no contradiction in Dingle's proof, in a letter to the editor. In fact, he just pedantically regurgitated Minkowski's diagram; furthermore, and as a discredit to Born, his response to Dingle contained *ad homenim* attacks on Dingle, for not supposedly wanting

[76] Dingle, Herbert, (1963). "Special Theory of Relativity", *Nature*, pp. 1248-1249.

to come to an agreement with special relativity.[77] However, the fact is that Dingle stated that all the rebuttals failed to resolve the contradiction. It is not surprising, for it is indeed difficult to prove that 1 = 3 is correct, which is tantamount to what the supporters of Special Relativity are doing.

Many physicists seem to escape from the fundamental questions that border on the collapsing the house of cards upon which the fundamental assumptions of space and time of present day physics and cosmology are built. For example, in discussing the twin paradox physicist James A. Coleman explains in one of the earlier accounts of special and general relativity for the lay public, entitled *Relativity for the*

Laymen and even endorsed on the jacket by Einstein as "[giving] a really clear idea of relativity", that:

> This is the paradox: At the end of such a rocket trip will the people on earth be older than the rocket men, or will the rocket men be older than the people on earth? Both views are correct according to the Special Theory. Yet they are contradictory and both cannot be true. You are now left to ponder this situation in quiet contemplation, without hindrance from the author.[78]

Basically[79] what he is saying is that you are left to ponder on some sublime concept, which in reality is nothing but a contradiction, as there are no real paradoxes in nature for it is built on cause and effect relations. The fact that we have been resolving so many so called paradoxes in nature (physics and biology, in

[77] Ibid., pp. 1287 – 1288.

[78] Coleman, James A., (1958). *Relativity for the Layman: A Simplified Account of the History, Theory, and Proofs of Relativity*, p. 68.

[79] Ibid., p. 26

particular), should have made us aware by now that there cannot be any real paradoxes in this universe. Paradoxes only reside in the human mind and human misunderstanding, or lack of knowledge.

Mendel Sachs, Professor of Physics at State University of New York and 'Einstein scholar and supporter', on the other hand believes that:

> If one should nevertheless insist that the Lorentz transformations do imply physical changes, it must mean that the theory of relativity is *false*, as a scientific description of real matter. Indeed, many of the critics of Einstein's general relativity, such as Herbert Dingle, have used this reason to claim that this is a false theory. Dingle asks the question: Which of the relatively moving clocks is one that is slow compared to the other? Not arriving at a logically sound answer, he concluded that the theory of relativity is false. But his conclusion is false because he tacitly assumes (with the rest of the physics community) the interpretation of the Lorentz transformations in terms of physical change. If the rest of the physics community is correct in this interpretation, then Dingle would be correct that the theory is false (according to what almost everyone says its transformations mean).[80]

Sachs does not see Einstein's theory with respect to the Lorentz transformations as being one that has any physical effect. To him it is only descriptional with respect to frames of references. In fact, the way the situation has been developing in physics and science in general, is that the late physicist Richard Feynman is one of the few major relativistic physicists who seems to be implying a causal interpretation for the relativistic effects and in this sense is closer to the causation-based ideas of microbit theory, as he states that it is the object which is travelling at close to the speed of light that will change due to

[80]Sachs, Mendel, (1988). *Einstein versus Bohr: The Continuing Controversies in Physics*, p. 209.

acceleration etc. and not the object that remains stationary.[114] Although acceleration may have no effects, he is at least on the right track in postulating physical changes.

All these discussions might lead to the question as to whether there is a formal cover-up about the erroneousness of Special and General Relativity, even more elaborate and dubious than just a personal intransigence in the physics community to avoid the embarrassment of backing a wrong theory or of losing remuneration or prestige at universities, if the theory is found or exposed to be incorrect.

In summation, we can conclude that: It only makes logical sense that a thing must be a particle or conglomeration of particles in absolute space and that motion in different frames needs a translation factor. Knowledge of conditions of other frames of reference enables communication, to make sense of things, that is, *physical motions and changes* based on *cause and effect*. If we are all in motion and there is no frame of rest from which we can observe things does *not* mean that there is no absolute space and that we must do away with this concept. This is like throwing the baby out with the bathwater – which is what has been done in contemporary physics.

POSSIBILITY OF CAUSAL EFFECTS AT LIGHT SPEED

Notwithstanding Einstein's conceptually problematic theories, which are only a limited operational tool at best, there has been an awareness among many physicists that gravity and motion have actual and similar physical effects on objects.[81]

We state that only objects that move at substantial speeds are subject to the greater relativistic effects approximated by Einstein's

[81]Renshaw, C.E., (1995). "The Effects of Motion and Gravity on Clocks", „*Aerospace and Electronic Systems*, IEEE.

equations because they are influenced by ambient microbitic structures in absolute space (the drag factor M. Muslim discussed in the last chapter).

There must be a cause and effect deterministic relation between things. Either the effects of the experiments are erroneous/misinterpreted or there is a *real* change on the structure and motion of the objects as they move through space, which is not empty but contains many particles, at the lowest level of which are the free remnant microbits. If the effects due to motions at near light speed are real, then we have the following interpretations:

- As an object's speed increases in an accelerator, the energy required increases (so it *appears* that mass is increasing).
- In a lower gravitational field there are more microbits and clock mechanisms of atoms/quartz etc. would move slower because there are more microbitic interactions with the atoms that are set to measure time. The increased interactions with the microbit formed particles (g-particles) are more numerous at lower altitudes from the earth's surface. This helps slow down the rate at which these particles oscillate (i.e. there is a drag factor).
- The stability or internal cohesiveness of a particle increases, the faster it moves through a microbit field and its shape may change due drag factors. This is because space is not empty, but extremely crowded as we have learned, leading again, to subatomic clock slowdowns, due to oscillatory slowdowns of particles used in such atomic clocks, with increasing speed.

THE HERTZIAN REVOLUTION

Usually in horror movies, we have the young heroine driving along a lonely road – she takes a wrong turn and is met with unsavory characters bent on doing her harm. Such it is with what we have come to call 'physics'. However, the unsavory characters in this case are not 'bad men', but the omnipresent facts from reality that keep creeping up on

the overall erroneous concepts of the body of Einsteinian physics. With relativity, consistency and empirical testing was dispensed with, by relying on vacuous, false and subjective notions such as 'beauty in mathematics' and the subversion of mathematics as a tool to understand relations of objects in absolute space. The reality is that we may have an ugly looking equation which reflects reality but a so-called beautiful equation that is sheer nonsense. Beauty in mathematics has nothing to do with the truth and this is one of the delusions the Einsteinians are fraught with. This was one of the first wrong turns. Concerning the misuse of Maxwellian equations using the Lorentz transformation, there were indeed three options to choose from; unfortunately, Einstein made the wrong choice, and his being backed by both covert and sensationalistic wrongheaded media at the time, the institutionalization of physics as dogma, rather than as a way to understand and seek the truth without violating basic laws of thought – i.e. the law of noncontradiction, which trumps, or ought to trump everything – has had the odious effect of fracturing an understanding of reality for over 100 years.

NEW TRANSFORMATIONS NEEDED

Now we shall examine the recent work of Physicist Thomas Phipps who has, instead of revising Maxwell's equations decided to use Hertz's equations which help us understand the proper concepts of space and time and which 'dovetails' with the microbits model of physical reality. Since the Lorentzian transformations do not reflect the reality of what was happening in nature, due to a disastrous misinterpretation (error), a new type of transformation is needed. This is the one championed by the late Thomas E. Phipps. Phipps used to be a follower of Special and General Relativity as are most physicists, but after he saw some inconsistencies, he started to question the whole edifice. At the beginning of his book he states:

> Virtually the whole of "established" modern fundamental theoretical physics (quantum mechanics aside) is based upon two sacred cows, Einstein's special relativity theory (SRT) and Maxwell's equations of electromagnetism, the latter being postulationally supplemented by a Lorentz force law.[82]

He further states that the shortcomings of Maxwell's equations lead to "pressing problems with field theory." In his own words he states that:

> The most prominent deficiency to be noted about the above specific field equations is that they are not invariant under first order (Galilean) inertial transformations. This is an extremely serious matter. It implies that in electromagnetism there exists an order of description….at which the relativity principle does not hold. [Due to this reason, if an] inertial system moves with respect to a "fundamental" system the operator $\partial/\partial t$… is non-invariant under the Galilean transformation.[83]

As discussed previously, it was this non-invariance that was the reason that led to the creation of Special Relativity. Phipps further elaborates on the historical development of electromagnetism:

> In the nineteenth century this feature of non-invariance was taken seriously. Maxwell's predicted fringe shifts were looked for experimentally but not found. Relativity at first order was thus discovered (by Mascart and others) to be an empirical fact. That forced the conclusion that Maxwell's equations were wrong, or that something else was wrong. A "solution" was offered by Lorentz and subsequently reinforced by Einstein (in 1905). This was that "inertial" motions are to be described not by the Galilean transformation. ..[but by Lorentz transformations].[84]

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[82] Ibid., *Old Physics for New*, p. 1.
[83] Ibid., *Old Physics for New*, p. 4.
[84] Ibid., *Old Physics for New*, p. 5.

The primary reason why the Maxwellian equations are problematic stems from a very basic fact that was overlooked in their formulation. As Phipps states:

> A directly related difficulty evidenced by the Maxwell magnetic induction equation… is that it misrepresents the Faraday observations on which it is allegedly based.[85]

This is because, as Phipps continues to explain elaborately, in Faraday's observations of the reality of magnetic induction there is a time derivative (d/dt) involved. This is most significant because using d/dt allows for the determination of the electromotive force, represented by the line integral and a partial derivative cannot be used to take care of accelerated relative motions of circuit parts when there is a shape change. Phipps states:

> Among those changed by Faraday was the *shape* of his circuit. That is, he moved *part* of the circuit in the magnetic field and observed that this produced an *emf* in the circuit as a whole. It is the shape changing aspect that necessitates using a total time derivative d/dt native to traditional field theory… There is no escape from d/dt, because a shape change cannot occur without accelerated relative motions of various circuit parts. Such different motions in different places require for their *local* (differential) description different values of a local velocity parameter $v_d(t)$, of the sort that is present in d/dt but not in $\partial/\partial t$.[86]

The mixing of local accelerations and non-accelerations which cannot be dealt with by Special Relativity, should be handle-able by General Relativity but this has never been done so far and besides the fallacious nature of General Relativity, a simple line integral will do the job. Phipps then goes on to recount how ineptly and fallaciously relativists – who see the obvious problem, try to overcome this problem by other

[85] Ibid., *Old Physics for New*, p. 9. 2nd Edition.
[86] Ibid., *Old Physics for New*, p. 10. 2nd Edition.

technical means. Phipps technically derives the correct formulation and states the crux of the matter:

> The introduction of the d/dt operator completely spoils the formal symmetry of space and time differentiations and thus destroys the basis in electromagnetism for SRT and for all modern physics built upon spacetime symmetry. And it leaves no justification for "universal covariance", the mathematical expression of spacetime symmetry that is the touchstone or shibboleth of our scientific age.[87]

What symmetry is violated? Phipps states that: "The reputation of every physicist of the modern era, dead or alive, depends on that little $\partial/\partial t$. Empiricism calls for the field equation…to be replaced by the Herztian invariant form…but that would destroy *spacetime symmetry*…" whereas the total time derivative upsets the perceived balance of space and time of those physicists who are not looking at the reality of events in space but have notions of mathematics such as beauty, symmetry etc., which cannot be the foundation of realty.

In his book, Phipps goes on to expand the Hertzian equation to different orders. He states that the phenomena of stellar aberration was given an incorrect explanation from Special Relativity and the Hertzian third order equation would accurately measure this phenomenon which we can now adequately test using Very Long Baseline Interferometry.[88] This is easily testable now and can decide as to which is the correct theory: Special Relativity or Neo-Hertzian. Stellar aberration refers to the angle at which starlight is seen through the telescope – the aberration effect being caused because the telescope is aimed on an object which is moving (the earth) and this motion causes the aberration. There is an error on the part of Einstein in his analysis of stellar aberration and is not addressed by modern day physicists, but rather, is swept under the rug. The error has been made because Einstein, due to his notions of

[87] Ibid., *Old Physics for New*, p. 15, 2nd Edition.
[88] Ibid., *Old Physics for New*, pp. 76-77.

relative velocities, based the velocities on source/sink and also to preserve spacetime symmetries. Phipps succinctly and concisely summarizes the situation:

> But of course that wasn't empirically correct. The stellar light sources we see are known to be in all sorts of motion, implying all sorts of values of source-sink relative velocity $v_{source\text{-}sink}$ …yet in fact all stars show the same SA [Stellar Abberration], the same α-value. The great distance of the stars makes no difference because relative velocity is unaffected by distance. The "fixed stars" are a fiction and of no interest to physics.[89]

The astute and valiant late Canadian physicist Paul Marmet (who was largely ignored by the Einsteinians) explained very clearly in his paper on this subject as to why relativity as applied by Einstein is incorrect[90]; it is because we have to consider the direction of the photons emanating from the star in relation to the Earth rather than the motion of the source (i.e. the moving star) and once we do this, the situation is not symmetrical as per relativity as conceived by Einstein (by symmetry we mean that if A moves it causes an effect X on B which is not moving; and if B moves but A is still, then the same effect X would occur on B): in other words, contrary to relativity, the movement of the star in relation to the earth will not cause the type of aberration as is to be expected with Einsteinian relativity because *photon* directionality, the source's motion and the motion of the earth keep adjusting and compensating so that aberration for all stars is the same (irrespective of which model of photons one uses: the particle, wave or microbit model of the photon). Phipps also discusses the irrelevancy of the source's motion:

> Given that the Hertzian or neo-Hertzian description of SA [Stellar Aberration] depends only upon detector motion, it is worthwhile…to mention a simple physical explanation that makes it clear why source

[89] Ibid., *Old Physics for New*, p. 85

[90] http://www.newtonphysics.on.ca/aberration/

> motion is not relevant to the phenomenon….Visible stellar objects, by their nature, are omnidirectional radiators.[91] He goes on to use the analogy of "spokes on a wheel" such that the "turn [of the wheel] is such as to cancel the effect upon aberration of any transverse motion of the star; since the centre of the wheel [i.e. the star/source] stays put."[92]

Concerning stellar aberration then, the fact is that one is forced to use the orbital velocity of the earth and because the first order equation used by Einstein agreed with the physical results, few physicists looked at the incorrect thinking behind the first order formula.[93] There is, as such, no symmetry as Phipps argues correctly and that is what was "born out of a parametric deficiency of Maxwell's equations, and fails the first test (SA) [Stellar Aberration] of ability to describe one-way light propagation…" The gauntlet, by Phipps, has been thrown to see which theory is correct in a clear-cut experiment which is currently possible to technically engage in. Which relativist is bold enough to now put his/her money where his/her mouth is? To quote Phipps again on the challenge:

> The absence of a second-order term in the neo-Hertzian result…and the presence of such in the SRT result, …is especially to be noted. It marks a significant difference, and thus provides the basis for a *crucial* test to decide between the two theories as to which is physics.[94]

Phipps also views time dilation as a physical phenomenon because he does not objectify time irrationally; time is simply a measure of motion and in their trajectory particles can be affected by other particles slowing them down, slowing their decay etc. This has been discussed at length in this book. However, the question of length contraction had been left open in this book, in the sense that either it is a physical

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[91] Ibid., *Old Physics for New*, pp. 93-94. 2nd Edition.

[92] Ibid., *Old Physics for New*, pp. 93-94. 2nd Edition.

[93] Ibid., *Old Physics for New*, p. 85.

[94] Ibid., *Old Physics for New*, p. 88.2nd Edition.

phenomenon as Herbert Ives was inclined to believe, from some experiments that were indicating this, or it is not, as Phipps contends. Phipps covers these topics in great detail from Chapters 6 to 8 in his book. However, these are matters of detail and can be resolved on the basis of a secure physics that does not violate common sense and is wholly deterministic.

PROBLEMS WITH TWO EXAMPLES PURPORTED TO PROVE RELATIVITY

There can be no contradictions in the truth, where truth is based on consistency (non-contradictions). So let us briefly examine some claims of relativity: starlight bending around the sun was known long before Einstein as a kind of a refraction albeit with gravity (first hypothesized by Newton and then by Soldner, *before* Einstein). It does not have anything to do with curved space because curved space is a fiction – space is not an object to be curved as Muslim points out in Chapter 1. However, gravitational particles that we call g-particles in the microbits' view, will affect the particles of light as it moves through a field that has a dense concentration of these particles as described by the microbits solution to what exactly gravity is.

The question of Mercury likewise is a tautological use of mathematics to explain the motion of Mercury around the sun *a posteriori*. It does not explain the causative mechanical reason why this is happening; remarkably, in the probably most underestimated peer reviewed physics journal paper in the world, Ives derived the Perihelion formula *from Newtonian Mechanics* and showed that there is an extra force that acts to cause the required advance of the perihelion[95]. But Paul Marmet had the complete explanation. Marmet though has been

[95] Turner, Dean and Hazelett, Richard, (Editors), (1979). *The Einstein Myth and the Ives Papers: A Counter Revolution in Physics*, "The Behavior of an Interferometer in a Gravitational Field. II Application to a Planetary Orbit", pp. 132 – 135.

tragically sidelined and when this reputable physicists started to show the fallacies of relativity his office was shut down. The solution to the perihelion problem, which has to be an actual physical force was resolved or solved by him. One can go through his whole proof in his works which can be found online[96]. Essentially, it is a physicalist explanation that ties in beautifully and perfectly with microbit concepts. Newton's equations do not take into consideration the fact that in order to conserve energy, measured time, measured mass and measured length vary on Mercury from those in outer space and that incorporating these on Mercury's gravity rather than outer space by using Newton's equations, one is able to derive the same perihelion formula that was derived by Einstein, without using esoteric and imaginary concepts such as curved space that have no existence in reality. Using the concept of energy conservation, for example, it is shown that because the Bohr radius actually physically changes on Mercury in relation to its size 'in outer space', the length of objects would, logically speaking, change on Mercury[97]. There is a physical cause and manifestation for these changes. At the end of *his tour de force* proof he states:

> We find that this gives [1] (equation 5.45):
>
> $$\Delta\phi = \frac{6\pi Gm'}{c^2 r(1-e^2)}$$
>
> Equation 82 is mathematically identical to Einstein's equation. Therefore, this shows that the advance of the perihelion of Mercury can be fully predicted using only classical mechanics, without any of Einstein's hypothesis and without space-time distortion. Neither new physics nor any mathematical hypotheses have been used in the above demonstration. Everything is now logical, realistic, and based on mass-energy conservation.[98]

[96] https://www.newtonphysics.on.ca/mercury/index.html
https://www.newtonphysics.on.ca/einstein/chapter4.html
[97] The explanation of the 'changes' are provided in Appendix B.
[98] https://www.newtonphysics.on.ca/mercury/index.html

Readers are encouraged to go through his proof and impeccable logic, line by line.

EXPOSING ESTABLISMENTARIANISM

It has been shown in this book that light speed would vary depending on the motion of the observer. A few excellent articles have been written since 2001 describing some astronomical and physical data that prove beyond a shadow of a doubt that this is the case by Stephan Gift. One of them concerns Jupiter's moon Io, where it is shown that the speed of light that reaches us from Io varies depending on where we are in orbit around the sun in relation to Jupiter, as the velocity is either additive or subtractive. These are further nails in the coffin of relativity that even a good high school student taking grade 11 or 12 physics can understand and the papers are certainly worth reading. These facts completely invalidate Special Relativity and ought to be known widely by a public generally illiterate about deeper scientific knowledge and critical thinking. Stephan Gift has also written a paper invalidating General Relativity via debunking the constancy of the speed of light with respect to moving observers in another paper that shows how the invariance of the speed of light is an illusion.[99] In this book, this is further discussed on pages 119 and 120. The question that arises is how come these faulty, and on the face of it, inconsistent and then shown to be physically wrong ideas, can be held and supported for over 100 years by the 'scientific' community?

Once ideas get established for socio-political, or psychological reasons they often become institutionalized. Once they become institutionalized they become an industry or quasi-religious sanctum that is difficult to topple. Many vested interests get involved; in maintaining such falsehoods many people who know that there is a problem or suspect a problem with a particular theory/paradigm no

[99] Gift, Stephan J. G., *Light Speed Invariance is a Remarkable Illusion*. https://arxiv.org/ftp/arxiv/papers/0708/0708.2687.pdf

longer remain honest and society at large suffers for it. Furthermore, an alternative view that is pointing to the truth has ramifications in many other areas that harm vested interests of those are bent on keeping the status quo. A typical example is the theory of natural selection which is in crisis but is, like relativity, being propped up like a house of cards. Any dissent by professors who still believe in evolution but not necessarily in the ridiculous seven-day creationism, is met with harsh retribution in many, if not most cases.

People also win prizes for such false ideas. This, in a way, legitimizes ideas. The media, controlled by lobby groups, propagates only certain views, whilst the illusion of objectivity is maintained. Granted that some areas are complex and the lay public may find such involved concepts difficult to understand and in this fast paced life, one is just trying to survive and may only superficially read superficial accounts in the popular press of theories or claimed discoveries that require a more critical study. Therefore, in this consumer and survival mode society that has developed (except for the very rich and financial elite), few people want to get to the root and determine the truth, or indeed have the luxury of time. After all, why would anyone want to get castigated and excommunicated for speaking up! The problem gets compounded when the false concepts propagated are partially correct and, therefore, it appears that the *whole* is correct, particularly by the special pleading and mass propaganda heaped upon the masses through various forms of media. Special and General Relativity/Einstein are prime examples of this. Supposed authorities and experts are interviewed *ad nauseum* to regurgitate sheer illogicality and publish books supporting such ideas. In this abysmal climate, the few people who disagree in these positions of education, hold dissenting views privately, until it becomes unbearable, or until it 'slips out' in a letter or article written by them. Then the axe falls on their careers. This is not how science, which is supposed to be the search for the truth, is supposed to operate! The result is a misdirection, retrogression, stagnation or slowing down in particular areas of science and a broader

understanding of the basis of reality, which if it will be understood, should help us solve problems in many areas because *all knowledge is interrelated.*

In what I regard as Gift's most important paper that debunks special relativity in practical day to day used technology, that is, the GPS, Gift shows that the one-way speed of light is not the same in all reference frames and is additive or subtractive to the speed of light c, which is supposed to be constant in all reference frames, thereby totally debunking relativity. He states:

> Despite this almost universal acceptance of light speed constancy, Zhang[3] has shown that what these many experiments have established is two-way light speed constancy and that one-way light speed constancy remains unconfirmed. The measurement of one-way light speed generally requires synchronized clocks and the identification of the Earth Centered Inertial (ECI) frame, in which light travels at constant speed allowed such clock synchronization to be realized. As a result, accurate synchronized atomic clocks deployed in the global positioning system GPS have become available for the measurement of one-way light speed between fixed points on the surface of the Earth[8,9].[100]

The velocities are c+v and c-v respectively depending on earth's rotation.

He states that for movement of the receiver directly away from the satellite, $\theta = 0^o$ and therefore (4) gives $c_R = c\text{-}v$. For movement of the receiver directly towards the satellite, $\theta = 180^o$ and hence (4) yields $c_R = c+v$.

> These varying light speed values using signal transmission from a GPS satellite to a ground-based receiver have also been observed by Sato.[30]

[100] Gift, Stephan J.G., (2020). "Tests of the One-way Speed of Light Relative to a Moving Observer", *Physics Essays*, 33, 3, p. 348. https://www.researchgate.net/publication/340610846_Tests_of_the_One-way_Speed_of_Light_Relative_to_a_Moving_Observer

> Hatch, as reported by Phipps…also drew attention to this varying light speed: "The range to the GPS satellite is computed from the transit time from satellite to ground. The transit time is multiplied by the speed of the light to get the range. But the speed of light has to be adjusted by the component of the receiver velocity (including the earth spin) away or toward the satellite. Thus, the speed used is (c-v) and (c+v)."[101]

The conclusion of his analysis is that:

> The speed of light is not constant as is believed by the community of scientists. In this paper, we have presented three tests that demonstrate light speed variation resulting from a moving observer. This finding, which manifested as the Doppler shift for the moving observer, is a striking refutation of the principle of light speed constancy. This principle requires that light speed be independent of the motion of the observer. It follows that the Lorentz transformations which are deduced from light speed variance are flawed. The Selleri transformations [17, 40, 41] have been confirmed as the transformations that best represent the physical world.[102]

It is surprising that this reality is not brought to bear upon the world and most physicists remain oblivious to this clear fact which is easily verifiable; this is not the way science ought to be conducted, influenced by socio-political, financial and institutional agendas. Maintaining such a debunked theory is shocking to say the least, and harkens back to the medieval times in Europe, with respect to adherence to incorrect notions of motion.

Another example: Astrophysicist G. Wallace in his book, *The Farce of Physics*[103] states that he published a paper in 1967 entitled "An Interplanetary Radar Test of Relativity" in which he claimed that

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[101] Ibid., p. 350.
[102] Ibid., p. 353.
[103] *The Farce of Physics* is available on the internet at: http://surf.de.uu.net/bookland/sci/farce/

the radar investigations showed that the velocity of light is "some form of c+v". He recounts that:

> … I made the startling discovery that the NASA Jet Propulsion Laboratory was basing their analysis of signal transit time in the solar system on Newtonian Galilean c+v, and not c, as predicted by Einstein's relativity theory. There is a short mention of the term [in a paper by Theodore D. Moyer of the Jet Propulsion Laboratory] as "Newtonian light time" but no emphasis on the enormous implications of the fact![104]

Wallace[105] subsequently tried to bring this up as an issue by submitting a letter for publication to *Physics Today*, but he was rejected thrice. Now whether Wallace's results were accurate or not, the fact is that he was not given a fair hearing. In this connection we quote the 'out of the normal' mention of non-relativistic methods to determine astrophysical distances, by the premier space agency in the world! The way NASA scientist, Moyer, describes his equation is as follows:

> The first term on the right-hand side is the *Newtonian light time* [emphasis is ours]; the second term is a relativistic correction which accounts for the reduction in the coordinate velocity (below c) due to the mass of the Sun and other bodies (such as Jupiter and Saturn).[106]

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[104] Wallace, G. Bryan, (1994). "Publication Politics", *The Farce of Physics*, pp. 5 –6.

[105] Feynman, Richard, (1997). *Six not-so-easy pieces: Einstein's Relativity, Sym-metry and Space-Time*, pp. 77-79.

[106] Moyer, Theodore D., (1981). "Transformations from Proper Time on Earth to Coordinate Time in the Solar System Barycentric Space-time Frame of Reference: Part 1" *Celestial Mechanics: An International Journal for Space Dynamics*, p. 47.

THE NON-EXISTENCE OF DARK MATTER AND DARK ENERGY: MODERN DAY EPICYCLES

It was discovered in 1998 that the universe is expanding and since then this has been confirmed through further observational data. A cosmological constant had to be included in Einstein's equations of general relativity to account for this. Therefore, it is surmised that there is a repulsive pressure created by the cosmological constant through Dark Energy. Yet no one has been able to find this Dark Energy, but a few researchers have generated computer models to account for the motions by putting in these hypothesized particles in the models and then even producing pictures and computer simulations showing a distribution of these particles!

According to the microbits' view: Outside this universe there is only objectless space and no such thing as friction or other things (particles) to impede the expansion of the universe – the only thing that could slow the universe down is the self-gravity of its components but we are in phase where the gravitational attraction between galaxies is now overcome by the *constant force* that appeared at the Big Bang and remained constant creating a situation of acceleration. In this view then there is no Dark Energy as such. As far as Dark Matter goes, it is simply a mis-realization of how gravity works which is made of the evolving distribution and equilibrated settlement of g-particles (gravity particles that are too small to perceive and are of course each themselves spherical groupings of microbits, as discussed in this book) and the emergent interaction of g-particles emanating from each star creating that emergent field. It is because of the distribution of g-particles as an emergent field that creates the higher velocity in the outlier stars of the galaxies, not a halo of dark matter. Likewise, the end of the universe will also be heralded by a command and the so-called flat (3 D) universe will collapse upon itself, back to a 'point'. Just as at the beginning when its expansion rate was fixed (albeit influenced by the internal intergravitational 'stickiness' of the galaxies) so too is its end. That command is by a conscious force that was responsible for originating

the universe.[107] If the conscious force willed a fixed force 'F' at the universe's inception which is the only conclusion arrivable at,[108] then that is which is causing the acceleration be it constant, exponential etc. which is governed by gravitational attraction as the universe expands. This force itself, and hence the universe's expansion, therefore, becomes proof of such an origination and singular originator, without any 'religious' baggage! With respect to Dark Energy which refers to the acceleration of the universe, rather than its slowing down, it has become a problem finding Dark Energy; this is a rather embarrassing situation in physics now and at the forefront of theoretical resolution. In microbits physics, there is no need for Dark Energy!

PROBLEM WITH INFLATION

A consequence of the misapprehensions gained by the intermeshing of special and general relativity and quantum mechanics is *inflationary theory*, which was introduced by some contemporary physicists to answer several profound questions in the standard big bang model. Why, for example is the universe so uniform and homogeneous? Two regions of the sky on diametrically opposite sides of the sky appear to be the same in respect of their general features; however, their spatial separation is more than 24 billion light years. Light has been travelling for only about 12 billion years, so the two disparate regions have not been in contact. Heat or light could not have traversed the gap to affect a mutual homogenization of their respective densities and temperatures.

[107] This is a logical and not 'religious' necessity discussed extensively by the authors in their other works.

[108] Haque, Nadeem and Muslim M. (2011). "New Proofs for the Existence of God (Part II): The Cosmological Applications of the Sesamatic Proof Scientific GOD", Journal | February 2011 | Vol. 2 | Issue 2 | pp. 102-104. Follow link:
New Proofs for the Existence of God (Part II): The Cosmological Applications of the Sesamatic Proof | Haque | Scientific GOD Journal (scigod.com)

Somehow the uniformity of the universe must have existed prior to the expansion; however, the standard big-bang theory does not explain how. On the other hand, why did the early universe possess minute density variations, which in fact have been so crucial for the evolution of the galaxies, stars and life on earth?

The difference between the kinetic energy and gravitational energy expressed as a ratio is so close that, by present estimates, the ratio must have been exactly one or close to one (within one part in 10^{18}). Inflationary theory attempts to resolve the problems, but it appears like an epicyclical theory that convolutes and complexifies things, still begging the question of the issue of precision, which is not eliminated, for precision is required to produce the fields that produce inflation! Inflationary theory was concocted to escape the early precision that must be required to be inbuilt into the Big- Bang event itself, and in trying to circumvent that, has not escaped the problem of precision, but just transferred it. The present state of affairs is such that we are expected to believe in these absurd mathematical universes which, for example, have always been there, or arose from 'nothing':

> In 1983 James B. Hartle of the University of California at Santa Barbara and Stephen W. Hawking of the University of Cambridge applied quantum[109] mechanics to the universe as a whole, producing a cosmic wave function analogous to the wave function for atoms and elementary particles. The wave function determines the initial conditions of the universe. According to this approach, the usual distinction between future and past breaks down in the very early universe; the time direction takes on the properties of a spatial direction. Just as there is no edge to space, there is no identifiable beginning to time. … Last year Hawking

[109] Ibid., *The Einstein Myth and the Ives Papers*, p. 85.

> and Neil G. Turok, also at Cambridge, suggested the spontaneous creation of an open inflationary bubble from nothingness.[110]

If there is a problem of the existence of the precision of the initial set-up, then so too is there a problem in the precision required to set up the conditions for the inflationary state at the beginning of the universe. One cannot escape the precision of the Universe, set-up at some stage, by trying to phase out problems with inflationary theory. Inflationary theory only transfers the precision problem to another set of parameters that have to be as precise or even more so. Even Alan Guth, the originator of the inflationary idea candidly admits that "the horizon problem is not a failure of the standard big bang theory …The uniformity of the observed universe is built into the theory by postulating that the universe began in a state of uniformity."[111]*This uniformity must be set or designed at the beginning,* which is exactly what the Microbit Model states.

IVES: THE UNACKNOWLEDGED TECHNICAL DEATH OF EINSTEINIAN RELATIVITY

In the 1930's and 40's Herbert Eugene Ives (d. 1953), one of the top physicists at Bell Laboratories, performed a series of experiments and published numerous theoretical papers based on experimentation results which modified the equations of relativity, basing them on Absolute Space and Time. Ives' now classical experimentation on atomic clocks showed that as an atomic clock speeds up its time-keeping mechanisms slow down. In other words, the results of motion have a real physical effect on the objects in motion. He also upheld the principle of relativity, as

[110]Bucher, Martin A., and Spergel, David N., (1999), "Inflation in a Low Density Universe", *Scientific American*.

[111]Guth, Alan H., (1997), *The Inflationary Universe: The Quest for a New Theory of Cosmic Origins*, p. 184.

espoused by Poincaré, and the independence of the speed of light on the motion of the source. However, according to Einstein, as opposed to Ives, the speed of light remains the same no matter what frame of reference one is in. This has led to the fusion of space co-ordinates with time and all the attendant irrational and mystical notions of space and time that we have discussed above, including the inconsistency of Special Relativity. In Ives' most significant paper[112], which has to this date been ignored by the general scientific community, he shows that it is not the speed of light that is constant for moving reference frames but the *rod-clock quotient*.[113] What this means is that since we are limited and measurement is based on limited speeds (for example the value *c*), our mathematical equations (models of reality) must include a reflection of these instrument measurements, taking the context into consideration. Everything in Ives' equations corresponds to measurable and observable parameters. In the case of 'relativity' it leads to one constant between frames of reference, but this is not "*c*" in terms of the speed of light being constant for all frames. Ives had, in other words modified Poincaré's modification of the Lorentz equations. In an almost equally important paper, Ives explains that the basic problem with the notion of the constancy of the speed of light irrespective of the frame of reference is that of the neglection of the fact that the speed *c*, can be ascertained using two types of measurements. The first type is the measurement based on light being sent *out and back*. The second is the *one-way* velocity. The only way to determine this velocity (using clocks) is to actually send a 'setting clock' from the clock at the origin to the distant clock at the other end:

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[112]Ives, Herbert E., (1951), "Revisions of the Lorentz Transformations", *Proceedings of the American Philosophical Society*, pp. 125–131.

[113]Ibid., p. 130. The *rod-clock quotient*, has a value *c*, in all frames (platforms). This is given by the equation:

$$c = \frac{(x'^2 + y'^2 + z'^2)^{1/2}}{t' + r'/q\,[(1+ q^2/c^2)^{1/2} - 1]}$$

> The resulting epoch will of necessity be some function of this self-observed clock velocity, hence the expression describing the epoch will contain terms involving the setting clock velocity. By the principle of relativity the "velocity", more properly the "rod-to-clock quotient" of light so measured will be the *same* on all platforms in uniform relative motion …[114]

He goes on to explain that Einstein uses the one way velocity of light in the Lorentz-Poincaré transformations but:

> From the contractions of length and clock rate with motion contained in these transformations it is possible to determine the epoch of the moved clock velocity, that is, it is *not c*, contradicting the initial postulate. This has been recognized in the Special Theory of Relativity to the extent that the use of moved clocks for establishing distant epochs is prohibited (or they are to be moved "infinitely slowly", which means the measurement would never be made!). Instead, distant clock epochs are prescribed to be made by light signals *assigned* the velocty *c*, by which indeed the resulting measured value is *c*, but this is a rigamarole, not a legitimate measuring procedure….
>
> This inconsistency of … [Einstein is contrasted with Ives' procedure in which the] … procedure of setting distant clock epochs by moved clocks then gives the "velocity" of a one-way signal as

$$\frac{c}{1- c/q\,[(1+q^{2}/c^{2})^{1/2} -1]}$$

[114] Ives, Herbert E., (1953), "Genesis of the Query 'Is there an Ether?'", *Journal of the Optical Society of America*, p. 218.

> where *q* is the self-measured velocity of the setting clock. … The principle of relativity is conformed to, there is no paradox, no internal contradiction, no prohibition of the use of clocks, no resort to "definition" unsupportable by measurement.[115]

To elaborate on some points made earlier, Einstein was attempting to preserve the laws of physics as being invariant when described from any frame. He could not stand the lack of symmetry in the Maxwellian equations that did not match the symmetry of the actual physical situation with respect to the motion of the magnet and conductor – where it did not matter what was moving, the magnet or the wire (conductor), the net result was a current flowing in the wire. However, the basic error in Einstein's thinking was as follows: different descriptions from different frames do not mean that the laws are different (i.e. the laws being reaction rates/velocities that are being observed in one frame from another frame (moving near the speed of light)). One could apply 'correction factors' to one's moving frame of reference so that the scientists in both frames get the same results. However, this does not mean that in reality, the speed of light remains the same in any frame of reference! Indeed, Ives states in his own paper that:

> Thus in these equations we find that it is not, as in the Poincaré revision, the velocity of light which is equal to *c* on all moving platforms, it is the [rod-clock] quotient ... which has the value *c* on all platforms. That a quotient involving readings of rods and clocks, in combination with terms describing their method of use – a quotient derived in full recognition of the independence of the velocity of light from the source or other matter – can have the constant value *c*, is

[115] Ibid., pp. 218 – 219.

understandable, while the paradoxical "constancy of the velocity of light" is not.[116]

Ives' revised equations for the Lorentz transformation, take into considerations four assumptions: Firstly, it is now an established fact that atomic clocks slow down as a function of speed, as shown in the experiment of Ives and Stillwell and as is indicative from the work of Pound and Rebka (the temperature- dependent Mossbauer Effect) and the experiment of Hay et al (the rotating wheel experiment employing mechanical acceleration). Secondly, it appears that the velocity of light is independent of the speed of the source, that is, if the source is moving at X, light will not move at $X+c$, once generated with respect to the source. Thirdly, although there is no proof that rods would contract, Ives assumed that as a premise, based on the null result of the Michelson-Morley experiment. Fourthly, there is the assumption that the slowing down of atomic clocks has nothing to do with collisions or interactions with other particles in space. If assumption 3 and 4 are incorrect, then the above equations of Ives would have to be modified. Microbit theory suggests that the interaction between the constituents that form the atomic clock and other particles affect the clock's particles, as speed increases (refer to the discussion of the 'drag factor' in Chapter 1). All these possibilities are both causally logical – what is not causally logical is that the speed of light in vacuum remain constant for any frame. It is this latter issue which leads to internal inconsistencies in special relativity, the very foundation upon which the phantasmogorical general relativity of curved spaces etc., is based, and it is this inconsistency which is circumvented in Ives' transformation equations. The other significant point to note is that the Lorentz transformations describe a one-way light signal, whereas

[116] Ibid., "Revisions of the Lorentz Transformations", p. 130.

experimentally *c* had been derived from two-way (out and back) velocities. In Ives' revision of the transformation equations, he incorporates the one-way velocity, and the speed of light *c* remains constant only because of the way we measure things from one frame to another using man-made instruments, not because it is the same no matter what frame. He cautions (as does M. Muslim in Chapter 1) that we must make a distinction between what we consider as being "simultaneous" and "synchronometric", the latter being a product of our measuring tools and the former being the reality of what actually happens in space.[85] As physicist Paul Marmet elaborates in his exhaustive treatment of the modification of Newtonian physics, in explaining physical phenomena, when we try to synchronize clocks by any known mechanism – using two clocks, or using a third lock as a reference for the two primary clocks, in moving frames of reference – we are "fooled" whatever technique we use to determine our motion. This happens because the change in the display times on two clocks is the same amount, even though the actual time taken by light to travel both ways is actually different and this happens because:

> We see that this constant number representing the absolute velocity of light is just a mathematical illusion. We have shown that it is due to the different clock rate on the moving frame [i.e the clock that is moving actually slows down physically with speed as do atomic clocks] and to the clock synchronization of the moving observer. In fact, the velocity of light is an absolute constant in an absolute frame at rest but due to the different clock rate on the moving frame and to the synchronization, it appears constant in any frame.[117]

[117] Refer to the book *Einstein's Theory of Relativity versus Classical Mechanics*, by Paul Marmet at the website: http://www.newtonphysics.on.ca/EINSTEIN/Appendix3.html

In other words, since the clocks on frames moving relative to one another at speeds approaching that of light are not sychronizable in any synchronization attempt using light itself or even by a third clock which moves from the first clock on the platform to the destination second clock, the change in the displays in the first and the destination second clock turn out to be the *same* even though the *actual* travel time of light both ways is *different*. This same change in display time in the respective clocks leads to the *illusion* and illogicality of the constancy of the speed of light in *any* frame, which forms the basis of Einsteinian Relativity.

We have argued that such arguments from contemporary physics are naïve because the overarching principle has internal and external inconsistency. One may have a simple theory or elegant looking theory, but if it is internally inconsistent in its application or structure, it cannot be true in the realm of reality. Such basic points are neglected in an effort to cling on to Einstein's theories by many a scientist or writer. For example, long after Ives had developed his theory based on Absolute Space and Time, it was acknowledged by Adolf Grünbaum, the German-born philosopher of science, that Ives theory had:

> … *the same predictive power* as Einstein's relativity theory. Further, in his latest position, Grünbaum retreated to claiming merely that Ives' theory is *ad hoc* in that it has an assumption (absolute space) in its foundation which he deemed it impossible ever to empirically verify. Also, he complained that Ives' theory predicts nothing in the way of feasible experiments and observable results that Einstein's theory did not predict. Grünbaum argued that Einstein's theory is less complicated since it assumes less and therefore has less to experimentally establish or verify.[118]

[118] *The Einstein Myth and the Ives Papers*, p. 74.

The present day scientific community and others must realize that internal consistency and external consistency (empirical corroboration) are the hallmarks of a theory that is along the correct lines as far as methodology goes, not naïve notions of simplicity and beauty. We neglect this fact at our own peril.

The interesting question is whether Einstein knew of Ives' theoretical and experimental work. As Richard Hazelett points out:

> As I have shown, it was only in 1938 that a rival theory to that of relativity matured into an unambiguous statement at the hands of Ives… Speaking to a reporter, Einstein lauded the Ives-Stilwell experiment as the most direct proof that had been brought forth in support of *relativity*.[119] An editorial the same day was titled, "Einstein Triumphs Again".[120] So far as I have been able to determine, Einstein after that never again publicly mentioned Ives and his theoretical work. It cannot be said by way of excuse that Einstein was ignorant of Ives' theoretical work. A relative of Ives told me that Ives had a number of friendly meetings with Einstein, some at Princeton and others at scientific conferences, at which Ives theoretical work was discussed. [121]

Here we see that although the Ives-Stillwell experiment supports equally Ives' theory as well as Einstein's, Einstein kept silent of this fact and let the public and scientists believe that it supported only his theory. Although Ives was honoured for his scientific achievements that included Wirephoto and the first long-distance exhibition of television, his significant and crucial work on the assessment and disproof of special and general relativity.

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[119] For a differing view refer to: *New York Times*, 27 April 1938, p.25.

[120] Ibid. *New York Times,* p. 22.

[121] Ibid., *The Einstein Myth and the Ives Papers*, pp. 84-85

To get the full framework of reality we ought to drop general relativity like a hot potato, and the indeterministic stance of quantum mechanics and adopt the microbit model which is a deterministic particle-based model (it is really a deeper and philosophically revised quantum mechanics model) in absolute space that unifies physics and leads to a unification of biology as well. The renowned mainstream though of late extremely critical Freidwart Winterberg, who is one of the four respected students of Heisenbrg stated in a lecture at Imperial College, University of London that:

> It is the failure to quantize Einstein's gravitational field theory formulated in a Riemannian curved space-time which has led to a profound crisis in modern physics, no less profound than was the crisis of physics at the beginning of the 20th century, resolved by the special theory of relativity and quantum mechanics.
>
> To overcome the present crisis several leading theoretical physicists have entered a maze of speculations from which there appears to be no escape: The conjectured existence of higher dimensional spaces, previously reserved by the spiritists as the seat for the ghosts of the dead, not supported by a single piece of physical evidence, with all physics laboratories still three-dimensional.
>
> In my talk I will present compelling reasons why the special theory of relativity, and by implication the general theory of relativity, cannot be the ultimate truth describing the physical universe. And the same must be said about quantum mechanics with its strange, over 10 meters experimentally verified, superluminal quantum correlations.
>
> The Ptolemaic system was cast in the concrete of circular motions, permitting us to add an arbitrary number epicycles. In a similar way Einstein's universe is cast in the concrete of geometry, permitting us to add

an arbitrary number of (higher) dimensions.[122]

[122] Lecture presented at Imperial College London, September 3-6, 2004: Physical Interpretations of Relativity Theory-IX, "The Einstein-Myth and the Crisis in Modern Physics", by F. Winterberg, University of Nevada, Reno, Nevada, USA.

Chapter 4

THE INCONVENIENT RISE OF QUANTUM DETERMINISM

Another implication of microbits is that if the universe is ultimately made of one type of particle, then it means that the universe is really akin to a binary system. How is this possible? If the smallest particle is the microbit, then it means that if we assign its presence a value of 1 and the absence of it as 0, one could describe all events and processes in the universe in terms of ones and zeros. This raises the possibility of modeling the universe in an integrated way using ones and zeros by storing particles with rules of interaction in supercomputers which run on ones and zeros, using the Boolean method[123] , one microbit corresponding to a bit in the program. Applying the rules of microbitic interactions we should then be able to model the universe from the Big Bang to the present and submicroscopic interactions that include gravity, and thereby see the results of the unification of physics based on one particle. This will create a revolution in our understanding of nature and also benefit even

[123]Miatello, Alberto, (2019). "New Boolean and Isomorphic Geometry Based on Two Symbols: 0 Dimensional Point . and 1 Segment -, Can Exponentially Enhance Computers' Performances.

https://www.academia.edu/39185626/New_Boolean_and_Isomorphic_Geometry_Based_on_Two_Symbols_0_Dimensional_Point_and_1_Segment_Can_Exponentially_Enhance_Computers_Performances

further in about 50 to 100 years with the practical usability of 'quantum computers' (quantum itself being understood as discussed in this book). This presupposes determinism: actual particles occupying absolute space. In this chapter, we will be showing how and why this is a deterministic universe, all the way from the micro, to the macro.

EXPLANATION OF THE WAVE/PARTICLE DUALITY AND STANDING WAVES USING THE MICROBIT MODEL

Is light a wave or a particle? In the double slit experiments on light, when one slit is open, one sees that light behaves as if it were a particle, as the distribution of the photons arriving on the target screen primarily land diametrically opposite the opening in the first screen, through which these supposed particles pass. Yet when *both* slits are open, instead of two bright areas of 'photon landings' on the screen mostly distributed directly opposite to where the two slits are, we get a wave-like statistical landing pattern. In other words, when a single slit is open, light appears to behave as a particle, but when both are open, it behaves like a wave.

Can we explain this anomaly using microbits? What we are claiming is that light is manifested by activation or agitation of existent microbits from a source, which then transmits a pulse of energy *hv*. Since space is crowded with passive photon particles that are lined up between the observer and the objects being observed, the quantized pulse agitates or activates neighboring photons, which, in a chainlike or wave-like motion, agitate neighboring ones, thereby transmitting a *directional* pulse from one reverberating photon to the next. In other words, the photon does not travel from source A to the destination source B. It is only a pulse that travels from A to B along straight line, by activation of neighbouring particles. In short, one can say that light comprises of the activation of photons along paths. It is, therefore, only an illusion that individual photons traverse from A to B.

What appears to be happening in the double and single slit experiments is that when one slit is open, there is a transmission of the pulse agitating a path of photons in a straight line, from the source to the target screen. However, when both slits are open, the activation of the sea of photons by the quantum pulse of energy *hv* generated *in* the source is such that the alignment of these photons is not only altered as before, that is, as when there is only one slit, but in addition, due to both slits being open, the pulse has the opportunity to 'explore' the other pathways, and register on the screen. The way this occurs is that: when both slits are open and we send pulses h*v*, these pulses create a pattern of pathways in the photon particle field. Note that the initially passive photons already exist in the area, as space is dense with them. *The generated pulses then follow the pathways which are more 'activated' by the pulses which are continuously being sent (i.e. there is a memory),* and the pulses also travel along the pathways then created. As an analogy, if you had two rubber bands which were held taut, how would you make the two vibrate, using only one band. If you crisscrossed them and vibrated one of them, its motion would make the other one vibrate too as it would be touching the other band. Likewise, with both slits open, as photon activation pulse pathways crisscross they create and maintain more pathways or 'roadways' as it were, than if there was a single opening in the barrier screen. This is what creates the wavelike registration of photons on the registration screen when both slits are open.

In conclusion, for the 'wave-pattern' to manifest, there is some recursion. When two slits are open, there is an interference among the photons 'downstream', near the target screen, and more of the pulses which are sent, are likely to follow the divergent pathways and hit the target screen, giving rise to the wavelike pattern. However, when one screen is blocked or closed, or a detector is placed, this interference pattern is destroyed because the interference pattern's activational influence affect is dampened. Due to this

reason, the wavelike pattern on the registering target screen is also destroyed. Any devices placed either at the slits or other screens (intermediate screens) placed between the first screen (with the slits) and the target screen, will re-activate the interference pattern based on the nature of the intermediate screen. In other words, detectors and other screens simply act as either dampeners or activators of the activity generated by the interference of the various photon pathways. Here, we see that photon pathways interacting and therefore become more activated. This increases the likelihood of more of the pulses, *hv*, being sent from the source following these activated pathways, in addition to pathway straight from the slit directly opposite to the screen, and hence the 'wave-like' result if both slits are open.

Standing waves are similarly produced by the cancellation of vibratory photons. We surmise that these standing waves are produced when the photons oscillate back and forth between two ends, where, when the oscillatory photons collide, as depicted by the short vertical line in Figure 4, there is cancellation, denoted by N. Everything in between the N's is reinforcement, denoted by A. The two-way arrow denotes the motion of the photon particles aligned in a chain-like fashion. (Note that the diagram is not drawn to scale, in terms of the size of the photons, relative to the length of their range).

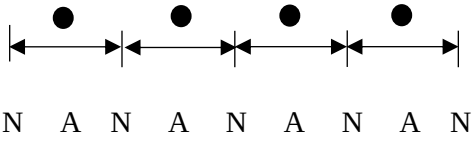

Fig. 4

Indeed, evidence that light cannot be photons travelling huge distances is provided by the standing wave phenomenon which Herbert E. Ives, foremost physicist at Bell Laboratories and one of the pioneers

in the development of television, and others before him, investigated thoroughly. As Ives states:

> The phenomenon of the interference of light waves, elucidated by Young and Fresnel, familiarized the scientific world with the fact that two beams of light, in constant phase relation, could be superposed to produce regions of darkness. The most extreme case of this is offered by the superposition of two beams proceeding in the same straight line but in opposite directions. According to wave theory whether the waves are tensional waves along a string, or waves of sound in air, or waves of light, the region above a reflecting surface should exhibit layers in continuous agitation, between which are regions of no activity. Such systems are called standing waves.[124]

EXPERIMENTS ON STANDING WAVES

Ives went on to discuss the experiment of Otto Wiener in 1890 in which a beam of light directed perpendicularly at a mirror would produce standing waves with areas of no activity (antinodes) and high activity (nodes) as recorded by a very thin photographic film, placed at an angle to the beam.[125] The experimental set-up was basically as follows:

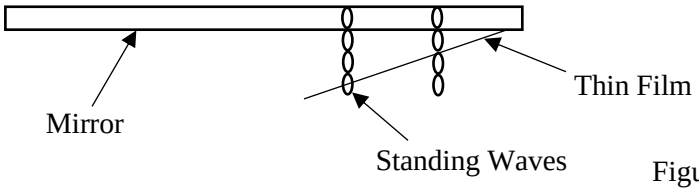

Figure 5

[124] Ives, Herbert E., (1979), *The Einstein Myth and the Ives Papers: A Counter- Revolution in Physics*, Rumford Medal Lecture 1951, "Adventures with Standing Light Waves", pp. 217 – 218.

[125] Ibid., p. 196.

After performing a repetition of Weiner's experiment, Ives concludes that:

> Refuge has been taken from this unsatisfactory state of affairs by using wave descriptions for some phenomena and photon descriptions for others, and it has been claimed that the two types of phenomena are never met in the same experiment. I submit that the last experiment described, the repetition of Wiener's experiment, certainly comes very close
> to showing both types of phenomena in conjunction.[126]

With this view we realize that in the Compton Effect[127] it only appears as if a photon has traversed from A (source) to B (destination) but in reality it has not. In summary, we state that light comprises of the pulse with packeted energy *hv* that travels through a sea of photons agitating them into oscillation (photon- photon interaction), in such a way that the pulse is carried along a straight path from source to destination.

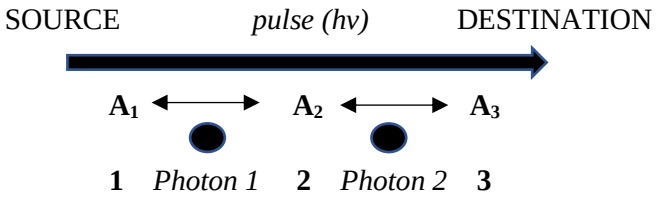

Figure 6

In Figure 6, the two-way arrows depict the limit and range of the individual photon (here depicted as Photon 1 and Photon 2). The energy (motion) is carried from 1 to 2, and then to 3 at energy *hv*. A_1 to A_2 and A_2 to A3 represent the range of each photon's reach, that

[126] Ibid.. pp. 217-218

[127] Sachs, Mendel, (1988). *Einstein versus Bohr: The continuing controversies in physics, p. 226.*

is, the range of Photon 1 is from A_1 to A_2 and the range of Photon 2 is from A_2 to A_3. The pulse traverses from one photon to the next at points 2, by contact of the smaller particles surrounding each photon. In M. Muslim's model (discussed in Chapter 1), the photon would oscillatingly stretch from A_1 to A_2, another one from A_2 to A_3. In my model, the photon travels from A1 to A2, shown by the two-way arrow in Figure 5. However, M. Muslim, who proposed this basic idea regarding photons, and I are in agreement of the primary concept of activation and transmission. Other particles moving 'out of the way' of the photons produce the 'transverse effect' associated with light.

'WAVELIKE' BEHAVIOUR OF MORE MASSIVE PARTICLES

In our model, what we are postulating is that the passive photons are perturbed by pulses created by the subatomic disturbances *in* the source, not by the emission of photons that are getting knocked off by electrons due to the 'heated' condition of a metallic substance at the source, to speak generally, and then traversing long distances. But the question remains: Why do we get the wave patterns that have been discussed above also, when we generate 'electrons' from the source as well? The explanation for this is not too surprising, once we consider that it was Louis de Broglie who turned the tables upside-down in the 1920's by postulating the electron's wave properties, to explain specific phenomena, at a time when the reverse happened with respect to light – it was being treated as a packet, that is, a photon instead of a wave, at the suggestion of Einstein. De Broglie would share our view in this book on the nature of microphysics, for he famously stated that:

> … statistical theories hide a completely determined and ascertainable reality behind variables which elude our experimental techniques.

Our explanation is that the electrons essentially follow the path of least resistance, and that is the path where the photons, which are

already pre-existing in space, are also perturbed and create photon pathways (i.e. active paths by vibration); the electrons concomitantly simply traverse those paths. This is why one gets similar patterns with electrons, as one does with photons.

In fact, recently, it has been shown that even large molecules such as fullerenes exhibit wavelike behaviour. How are we to explain this? In the experiment with C_{60} fullerenes[128] the experimental set-up was that these fullerenes are shot through two openings and a final third grating. The recording of the fullerenes on the other end shows classical interference. In this case, what we believe that is happening is the same as that which is occurring with respect to the formation of the interference of the electrons. Again, the underlying photon particles are perturbed, creating an interference pattern and essentially pathways, as described in the section on the double- slit experiment. The fullerenes follow those pathways, like a road, which are more active than others. The ones that are active are the ones with intersecting pathways. This is the reason you get interference. The difference between the photon patterns and those interference patterns of the electrons and large atoms is that the interference patterns generated by photons are due to the pulses that are created *in* the photon field itself, whereas when atoms and molecules exhibit such behaviour, they are actually traversing the underlying perturbed photon field, which influences their motion, to created wavelike patterns at the recording end of the apparatus. In the microbit model when light pulses or electrons pass through a narrow aperture or slit, those that are close to the edge of the slit are diffracted. Note that diffraction helps explain the formation of the lines of path and their intersection downstream of the source, by crisscrossing with each other, which is a necessity

[128] Arndt, Marcus, *et al*, (1999). "Wave-particle duality of C_{60} molecules", *Nature*, pp. 680-682.

in our microbit model. By diffraction what is meant is that light 'bends' as the passes through such small openings, governed by $\theta = \lambda/D$, where θ is the diffraction angle, λ the wavelength of radiant energy, and D the aperture diameter.

MICROBIT THEORY AND DAVID BOHM'S QUANTUM POTENTIAL MODEL

In David Bohm's Model, which is essentially a resuscitation, expansion and development of Louis de Broglie's earlier idea, the electron is guided by a pilot wave that splits up when interfering with an apparatus and informs the electron of the surroundings which in turn causes the electron to move based on such global information about the experimental surroundings or set-up. Bohm's model, though deterministic like the microbit model, needs superluminal or non-local interaction. As John Briggs and David Peat explain:

> The pilot-wave theory has been applied to the double-slit experiment. Here the quantum potential causes particle tracks to bunch together as they pass through the slits, accounting for the familiar interference fringes. The guide wave acts nonlocally to organize the arrangement of every particle.[129]

The microbit model, in contrast, needs no superluminal action, or far-fetched pilot wave information gathering. With microbits, the surrounding pathways *are* the entrenched guides and informers of the pulses being generated by the source of deterministic solutions. However, despite the contrived nature of the pilot wave model, the positive aspect that Bohm has played in the formation of his theory is that he has brought about a discussion of the

[129] Briggs, John, and. Peat, F. David, (1984). *Looking Glass Universe: The Emerging Science of Wholeness*, p. 140.

possibility of deterministic solutions to quantum mechanical enigma. Bohm has astutely and eloquently attacked the closed-mindedness and dogmatic thinking of many physicists in their clinging onto indeterminism, intransigently.

EXPLAINING EPR AND BELL'S THEOREM

When Einstein was engaged in his famous debate with Bohr on the nature of quantum mechanics, he devised a thought experiment in which he sought to outdo Bohr with respect to showing the fallaciousness of Bohr's indeterministic views of quantum mechanics. According to Heisenberg's uncertainty principle, if one could determine the position of an electron, then in doing so, having disturbed it, one would not be able to measure its momentum or spin. What Einstein, Rosen and Podolsky suggested was that if a pair of particles A and B started out together, they would necessarily have opposite spins and if we then separated them by a large distance, if, for example, I knew the spin of particle A then I would know the spin of particle B without measuring its spin, because it would be the opposite of that of particle A, and if I knew the spin of the B without measuring it, then I could measure its position and know both position and momentum, without disturbing B, thereby disproving indeterministic notions of physics and showing that things are indeed wholly deterministic. What was found by conducting experiments (as that of Alain Aspect) and using Bell's theorem to judge the outcome of the experiment, is that when we measure the polarization of one of the photons (analogous to measuring spin) that was part of a pair that was initially together, it appears to instantaneously affect the polarization of the other photon. [130]

[130] Penrose, Roger, (1989). *The Emperor's New Mind: Concerning Computers, Mind's, and The Laws of Physics*, pp. 279 – 287. See also: Penrose, Roger, (1995), *Shadows of the Mind*, pp. 246 – 249.

The indeterministically bound physicists and philosophers believe that this result implies instantaneous action at a distance. Because faster than light travel is not allowed, according to Special Relativity, the situation is considered paradoxical and it is being assumed with this type of relativity, that the quantum world can exhibit non-local behaviour, that is, the instantaneous connectivity between things separated from each other.

Since microbit concepts, however, allow for faster than light travel, if:

1. the results of all these experiments are accurate;
2. there are no flaws in the measurement;
3. there are no flaws in the interpretations from these experiments;

and all this is still under some debate, with the issue of the two loopholes, then one can actually easily envision a transmission being faster than the speed of light, though not instantaneous, according to the microbit model. But we need not go that far. In a detailed discussion below, we will see what is really going on! However, before we discuss the solution it is important to discuss the loopholes in the current experiments. Some researchers claim that there are other subtle points that need to be considered with regards to Bell's Theorem, in that there are loopholes. Specifically, there are two loopholes: First, there is the locality loophole, that refers to the two objects under investigation being so far spatially separated that no communication is possible at *c*, the speed of light in vacuum. In other words, they must be in different 'light cones'. The second loophole is the detection-efficiency one, in which only a small fraction of the 'particles' are detected. No experiment thus far has been done that closes both loopholes in a single experiment.[131]

[131] Grangier, Philippe, (2001). "Quantum physics: Count them all", *Nature*, pp.

According the microbit model, it must be remembered that the photon is activational and two motions that originate from one common point but are sent in opposite directions or contain opposite complementary characteristics affect the whole network of photons that form both a field and pathway, where only the pulse travels, not the photon. Furthermore, it is to be remembered that according to quantum mechanics, most contemporary physicists are erroneously supposing that the electron, for example, does not have a definite spin at any given time which can be measured with respect to various directions. The microbit model presupposes such inherent determinacy. The indeterminant position of Bohr and his present day followers does not make any sense, and one does not need experiments to show the fallacious nature of such thinking. What needs to be done to show this by experimentation, however, is to overcome the two loopholes mentioned and also realize that quantum mechanics is probabilistic. Anything short of this is premature and misguided. Note the interesting contradiction of trying to disprove EPR, which postulates actual position/momentum, and yet interpreting the outcomes of experiments using the notion of the non-existence of definite positions and momentums and concomitantly also spin, which is what the experiments were set to determine in the first place. When this is realized, it will no doubt be confirmed by experiments too that the notion of non-locality (instantaneous action at a distance) for

774 – 775. Also: Rowe, M.A.; Kielpinski, D.; Meyer, V.; Sackett; C.A.; Itano, W.M.; Monroe, C. and Wineland, D.J., (2001), "Experimental violation of a Bell's inequality with efficient detection", *Nature*, pp. 79 – 794.

particle based structures will be dispelled and will never return to the domain of physics!

CONCERNING THE NATURE OF LIGHT

In my correspondence with Lehnert on a clarification of his position with respect to the double-slit experiment, he states (as directly quoted) the following points:

- From my basic equations on a photon wave packet, there are obtained two solutions in cylindrically symmetric geometry. One has comparatively extended transverse dimensions, and the other is needle-like.
- With the properties of these two modes in mind, an interpretation of the experiments is made somewhat in the sense of the Copenhagen school by Bohr. The photon of my theory has like the neutrino a rest mass, and I therefore introduce the hypothesis that it can perform "photon oscillations" between the two obtained states, in analogy with neutrino oscillations. For both photon modes energy and spin are conserved.
- In this way the photon in the two-slit experiments can successively behave both as a wave of extended transverse dimensions and as a needle-shaped particle-like geometry when passing through the double slits.

In this book, the reason for the ‘dual nature of light’ has hitherto been explained in detail An experiment, conducted in 2006, (Couder’s experiment) which was five years after the first publication of this book in 2001, points to the microbitic explanation of the double-slit experiment being true, in that it shows that analogous motions occur in the macro-level to quantum mechanics if there is a physical hidden structure. In the microbits’ model of the double-slit experiment, we had postulated a physical foundation for the paths which electrons traverse as well as the physical mechanism by which the photon itself would behave as a particle and wave in a logical way. The macro-level is thus shedding light on the quantum: the patterns in nature are the same at all

levels. This should be a wake-up call to those who are dissatisfied with the state of quantum mechanics. It is a wake-up call to a fully deterministic explanation at all levels.

TOWARDS QUANTUM REALISM: JOHN BELL, FOR WHOM THE BELL TOLLS

From basic logic the universe does not generate itself, and is not self-aware or evolving towards consciousness etc. The particles exist as a reality in space at a specific location and with a specific motion and there is no such thing as the collapse of the wave function. In addition, nothing can travel instantaneously as a spooky action at a distance. The universe of particles in absolute space is based on cause and effect – based on the design and pathways of the microbits and all the emergent laws that arise from them due to cause and effect. The microbits, in fact, form a system that is neither analogue nor digital, neither emergent nor non-emergent, but the microbits have properties of all these in a unique mix, all of their own. For example, gravity, according to the microbits' model is based on particles that emerged from the Big Bang and the gravitational force etc., acceleration due to gravity are a result of the jittery motion of these particles imparting net directional forces. 'Newton's Laws' etc. are indeed a result of intervening particles that he surmised. The microbits are very orderly and based on rules and this allows us to formulate laws based on ensemble particle behaviour at the submicro level. Therefore, for example, as stated in the previous section, the experiments testing the EPR thought experiment through Alain Aspect and subsequent tests that purport to violate Bell's inequality are being misinterpreted through measurement and there is no instant coordination to produce strong correlation. As discussed by Professor of Chemistry and McGill University Bryan Sanctuary[132] and through papers written by Joy Christian at Oxford University *Bell's*

[132] See the Youtube series, starting with:
http://www.youtube.com/watch?v=Zg7aLYeYNfM

model was too simplistic and did not account for all statistical possibilities of rotations or spinning orientations of particles in space. In other words, by basing statistical limits, a very restricted model of electron and photons was shown to violate Bell's inequalities, but since the inequality is itself incorrect then it means that locality holds sway and Bell's violation can be explained through regular statistics; in other words, quantum mechanics does not violate the equality. This means that there is no instantaneous correlation between the recordings of the two particles that arise from a common source.

The very basic reason why the inequalities are incorrect is that, contrary to the prevailing obscuritantist and pseudo-sophisticated views, the electron has an actual spin in 3–D space *in principle* just like macroscopic objects. It does spin about an axis. So it has a 3D structure. It spins on various tiltable axes depending on the nature of the other particles surrounding it. When a probe lines up on one of its indistinguishable axes it disturbs the ontologically existent and unobserved spin. Without going into mathematical jargon, the fact is that Bell's inequality is to be expected as the electron is not a point particle with only a binary set of spins, as has erroneously been considered. In the Stern-Gerlach experiment, when one measures the spin in the z direction the particle is so affected that it orients in that direction and its spin in the other directions become non-existent. Of course if these electrons come from a common source there is bound to be strong correlation but that correlation is statistically determined by an ensemble of particles and that correlation is also affected and is sensitive to perturbation depending on the environmental set-up as the two electrons part company. However, an electron spins in an unknowable direction (with current technology) when it is not being measured. It does have a spatial configuration and specific motion. The data set is larger and the probabilities are therefore to be expected as $2\sqrt{2}$ instead of 2 in the more complex situation of particle's real spin in 3-D space. Bell's inequality was hence based on very naive concepts which the physics community bought into and, as usual, because it is a

complex subject the media bought into it too; it got taught at universities and the non-specialist public just accepted it as they rely on the scientific authorities.

New age mysticism also jumped the band-wagon and started to support this idea. As a result, when one examines all the evidence, there is no action at a distance or spooky action at a distance. The probability for correlation as found in the supposed violation of Bells' inequality arises due to simple statistics taking this larger data set of hidden variables. In fact, this whole episode is the fallacy of correlation-causation. It is highly ironic that over the last 50 years Bohr's interpretation and its variants have not recognized this basic fact of motion, perhaps because of the combined reasons of having a kind of a mystical outlook to nature and also because of confusion arising from a logical positivistic perspective of believing the existence of something only if measured as being scientific, which mutated into the ontological non-existence of something unless it is measured (which are two very different things, as are night and day). This is the beginning of the collapse of 'entanglement' and a reversion to a unitary view of physics where there is no separation between 'classical' and 'quantum', as such. All our textbooks will have to be re-written on this subject that touches upon interpretation. This will also have an effect on the technology of information processing systems (such as quantum computing) – to bring it back to reality (in the interpretation of what is happening) from the pie-in-the-sky ideas. This whole incorrect outlook towards nature is what I call *naïve abstractionism* and as we saw earlier is at the root of and plagues also special and general relativity.

If only Einstein had used pure logic against his own conclusions, as he did against quantum mechanics (as per the EPR argument which he participated in) he would have really achieved something of real significance rather than illusory significance which is now poised like a deck of cards at the edge of a precipice, ready to collapse into oblivion. This, in fact, corresponds with the microbit concepts of actual concrete reality of particles in space at the smallest levels. It should be a big

lesson and make physicists realize that mathematics is only a measuring and statistical tool to measure the Mind Independent Reality out there. When we make mathematical models or yardsticks, if we do not model physical reality out there well enough we will end up with inaccurate, incorrect or totally false conclusions. The time is now over for Quantum Mechanics based on the ontologically indeterminate view and this is eventually going to lead to Quantum Determinism, which is really just part of the overall Deterministic view of nature. University of Liverpool physicist, Werner A. Hofer rightly and unequivocally states:

> The experimental results obtained in Yves Couder's group and theoretical results by Gerhard Grossing indicate that the wave-like distribution of trajectories of electrons in interference experiments are most likely due to the quantized interactions leading to a discrete set of transferred momenta.[133]
>
> The emerging picture, from the preceding sections, is one of a scientific revolution with a depth and scale not seen since the quantum revolution itself, about a century ago. …[134]
>
> What is removed, is the additional weight quantum mechanics carried with it in the form of contradictions, paradoxes, impossibilities, and plain weirdness. There is no quantum weirdness left, once the extension of electrons, the role of wavefunctions, the specifics of rotations in three dimensional space, and the consequences of discrete interaction energies and momenta are thoroughly understood. This will almost certainly not be welcomed by some colleagues: after all, this quantum weirdness made for hugely exciting research programs and research papers for the last two generations. It remains to be seen, which of the more outlandish

[133] Hofer, Werner A., (2012). Quantum mechanics: A new chapter?, http://arxiv.org/pdf/1209.1029v1.pdf, p. 1.
[134] Ibid., p. 7.

> predictions, possible only within the ill-defined conceptual framework of conventional quantum mechanics, will in the end survive.[135]

Couder's experiment, that was first performed in 2006, (see Youtube: http://www.youtube.com/watch?v=W9yWv5dqSKk) shows that a spherical drop of silicon floats atop a liquid where waves are created and that symbiotic relationship develops between the drop (analogous to a particle) and the waves in the fluid that guide the drops and many of the properties of the quantum world of the submicroscopic are the same as in this analogous macroscopic realm. As mentioned in a previous section, in 2001, we had the same explanation (in principle) as Couder's unusual explanation for the double-slit experiment (in the first edition of this book). Although Couder is examining this analogously we should remember that this analogue can turn out to be true of the actual principles involved at the quantum level. This is because the *patterns in nature* are the same at all levels. This is pointing to the veracity of the microbit model wherein the 'waves' are actually smaller sized particles that affect the trajectories of the electron. Readers are encouraged to study Physicist Jean-Pierre Vigier's work on stochastic causal quantum mechanics, based on De Broglie and Bohm's ideas, which posited an underlying layer of physics behind quantum mechanics, which we have simply explained using microbits. All of this is really showing that de Broglie's interpretation was closer to the truth and that the Solvay conference appears to have been inordinately hijacked!

[135] Ibid., p. 7.

Chapter 5

FASTER THAN *c*?

At the University of Berkeley, Professor Raymond Chiao's group has been conducting various experiments with photons. His and other groups have now confirmed that light can indeed travel faster than *c* when it passes through a specially constructed dielectric barrier. However, since this contradicts Special Relativity, the very group that has discovered them has downplayed these remarkable results. As Raymond Chiao states:

> We have thus confirmed that the peak of the tunneling wave packet may indeed appear on the far side of the barrier sooner than if it had been travelling at the vacuum speed of light. [And here comes the apologetic special relativity saving statement:] No signal can be sent with these smooth wavepackets …[136]

According to the microbit based explanation, however, it is not the photons that traverse the barrier, but rather, the pulse speed increases *in* the barrier, since the particles in the barrier oscillate faster due to the pulse transferred from the photons immediately adjacent to, and outside the barrier. Therefore, it only illusorily appears as if a photon entering the barrier, speeds up through the

[136] Chiao, Raymond Y.; Kwiat, Paul G.; and Steinberg, Aephram M., (1994). "Quantum Nonlocality in Two-Photon Experiments at Berkeley", p.14. (Preprint quant-ph/9501016).
(http://physics.berkeley.edu/r,esearch/chiao/welcome.html

barrier, and re-appears on the other side of the barrier. We state, however, that it is the pulse of particles *in* the barrier that increases in speed/frequency. The net result however is that superluminal velocity of the pulse has been achieved, and that in the future, such superluminal discoveries with photons or other particles will be used in information systems as technology advances, thereby even destroying the excuse of such photon behaviour as being uncontrollable or indeterminate, in order to circumvent violating the sacred cow of Einsteinian Relativity.

The second area of intensive research is photon-photon reactions, where Raymond Chiao's group is investigating photon-photon reactions in specialized settings, trying to ascertain if light can indeed behave as a superfluid.[137]However, the microbit model of the photon exhibits photon-photon interactions as the very basis of light's/radiations behaviour and that other photon-photon interactions are only a natural consequence of such a view.

The most 'dramatic' results on experiments investigating the potentiality of exceeding the constant "c" is the experiment of L.J. Wang, A. Kuzmich and A. Dogariu, of the NEC Research Institute, as reported in the scientific journal *Nature*. In their experiment, using "gain-assisted linear anomalous dispersion to demonstrate superluminal light propagation in atomic caesium gas"[138], they have shown that:

> Remarkably, the signal velocity of a light pulse, defined as the velocity at which the half point of the pulse front travels, also exceeds the speed of light in vacuum, *c*, in the present experiment. [139]

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[137] Chiao, Raymond Y., (1999). "Bougoliubov dispersion relation for a "photon fluid": Is this a superfluid?" (Preprint quant-ph/9908060) http://physics.berkeley.edu/research/chiao/welcome.html

[138] Wang, L.J., Kuzmich, A. and Dogariu, A., (2000), "Gain-assisted superluminal light propagation", Nature, pp. 277.

[139]Ibid., p. 279.

The experimenters also discuss that another part of the pulse moves at speed greater than *c*, specifically "…the 'frontal velocity' of a step-function signal…". The main point is that there is some part of the pulse, some thing, in other words, that exceeds *c*, and has the potential to carry information or be used in information processing, violating Special Relativity. [140]

In subsequent experiments Podkletnov, who we discussed in Chapter 2 concerning gravity, has been able to generate a gravity beam (using a gravity impulse generator) that has been able to travel at 64 times the speed of light.[141] The speed was determined using rubidium atomic clocks over a distance of 1211 metres, according to a recent interview with Podkletnov. A second experiment confirming this speed has also be conducted over a distance of 5 km. Anything that moves from A to B can carry information if set-up for it. It is a lame excuse to save Einsteinian Relativity that it is stated by the proponents of this fad of a theory, that though it be true that in some cases the speed of light has been exceeded, no information can be transferred!

[140]Ibid., p. 279.

[141] Podkletnov, Eugene, and Modanese, G., (2003). "Investigation of High Voltage Discharges in Low Pressure Gases Through Large Ceramic Superconducting Electrodes, Journal of Low Temperature Physics", Volume 132, pp. 239-259,
See also: https://medium.com/predict/eugene-podkletnovs-impulse-gravity-generator-8749bbdc8378
See also: Ventura, Tim, (December 28, 2015). "Eugene Podkletnov's Impulse Gravity Generator."

Chapter 6

THE SUBQUARK – INEVITABLE ROAD TO THE MICROBIT

Even though we cannot say, for sure, how many levels of groupings of microbits exist we can, nonetheless, derive an approximate mathematical model using the most recent advances in mathematics. For reasons which I will not delve into this article, I believe that there are three levels below the quark level before we get to the microbit itself, that is quarks(subquarks(sub-subquarks(microbits, where the notation the bracket means "are comprised of a grouping of"; this reason will be covered in another planned article. Several major particle physicists who accept and work on the Standard Model of particle physics have written papers over the last few decades where they have hypothesized, strongly, subquarks. Chief theoretical physicists who opted to investigate the possibility of subquarks were: Abdus Salaam (the Physics Nobel Prize Winner of 1979) his collaborator Jogesh Pati and the Japanese physicist Hidezumi Terazawa. Indeed, the distinguished Terazawa, still going strong, stated in one of his most recent papers that:

> In January 1996, the CDF Collaboration at the Fermilab Tevatron collider [9] released their data on the inclusive jet differential cross section for jet transverse energies…which may indicate the presence of quark substructure at the compositeness energy scale, ΛC, of the order of 1.6 TeV. It can be taken as an exciting and already intriguing historical discovery of the substructure of quarks (and leptons), which has been long predicted, or as the first evidence for the composite model of quarks (and leptons), which has been long proposed since the middle of 1970's [3, 4, 5,

> 6, 7]. It may dramatically change not only the so-called "common sense" in physics or science but also that in philosophy, which often states that quarks (and leptons) are the smallest and most fundamental forms (or particles) of matter in the "mother nature". Note that such relatively low energy scale for ΛC of the order of 1 TeV has recently been anticipated rather theoretically [10] or by precise comparison between currently available experimental data and calculations in the composite model of quarks (and leptons) [11]. However, the experimental indication would certainly encourage us, "composite modelists", to continue to study the composite model of quarks (and leptons) extensively and to make more predictions for future experimental tests of the model.[142]

Hidezumi, in fact went beyond this in his earlier paper and speculated that subquarks may have formed in the early universe after the Big Bang. In his paper "Possible Effects of Non-Vanishing Particle Sizes in the Early Universe", he states that:

> Possible effects of the non-vanishing sizes of particles (atoms, nuclei, nucleons, quarks, and leptons) in the early universe (the temperature T)...are discussed in an extended Friedmann model of the universe... Especially pointed out are the following possibilities:....(4) for T 103TeV, the universe was filled not with quark-gluon plasma but with "subquark plasma".[143]
>
> ...However, it seems difficult to extend ...the Einstein-Friedmann field equations, so that the non-vanishing sizes of matter particles may be accommodated. The reason for this is simple: Neither Einstein's picture of gravitation in general relativity nor Friedmann's picture of the universe is

[142] Terazawa, Hidezumi, (2011). *High Energy Physics in the 21-st Century*, "Unified Supersymmetric Composite Model of All Fundamental Particles and Forces", p. 3.

[143] Terazawa, Hidezumi, (1997). INS Report: *Possible Effects of Non-vanishing Particle Sizes in the Early Universe*, CERN, Institute for Nuclear Study, University of Tokyo, Tokyo, p. 1. This article was also published later on in: *Modern Physics Letters A*, Volume 12, Issue 38, pp. 2927-2931 (1997).

> consistent with particle physicist's picture of particles with non-vanishing sizes. Probably, either completely particle-theoretical description of the universe in the continuous space-time or drastic modification of the spacetime metric into a discontinuous one seems to be necessary. Which way to proceed is a subject for future investigations.[144]

In a recent *Scientific American* article it is stated that there may be indications that quarks and leptons themselves are comprised smaller particles:

> The Standard Model views quarks and leptons as indivisible. Astoundingly, though, various clues imply that they are instead built of still smaller components. If quarks and leptons are not fundamental at all, and smaller bits do in fact exist, their presence will force extensive revisions of our theories. Just as nuclear power was inconceivable before Earnest Rutherford discovered the structure of the atom in 1911, unveiling another sub-atomic onion will certainly reveal phenomena we cannot yet imagine. [Yes it will indeed and the endpoint will be the microbit!].[145]

The Fermilab physicist, Don Lincoln, goes on to say:

> The Standard Model treats the quarks and leptons as point-like particles without any internal structure. But the patterns within the table, as within chemistry's periodic table, raise the possibility that the differences in generations stem from the configuration of even smaller building blocks of matter within quarks and leptons.[146]

It goes without saying, but must be mentioned nonetheless, that any particle has a finite size; just because we cannot measure it does not mean it does not. Or just because our concocted mathematical formulations may have problems dealing with this basic logic does not

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[144] Ibid., p. 6.

[145] Lincoln, Don, (2012). *Scientific American*, "The Inner Life of Quarks, p. 39.

[146] Ibid., p. 40.

mean that it has no structure. They are not 'points' but have a finite size, albeit so minuscule. If there is no size then it really does not exist!

To end our discussion of quantum mechanics as a deterministic system, we shall cite Thomas Phipps, where in his second edition of *Old Physics for New* he discusses the drifting into "La-La-Land" of contemporary quantum mechanics based on the Copenhagen Interpretation, where c-number parameters that tell us the locations of particles in 3-space or phase space are lacking:

> Despite all earnest talk about observers and observability, the experts' currently spavined "quantum mechanics" is crippled by a manifest lack of parameters needed to tie it meaningfully to reality.[147]

[147] Ibid. p. 319, *Old Physics for New*, 2nd Edition.

Chapter 7

FINAL THOUGHTS

If everything came from the Big Bang, then there has to logically be the first instance of its split products. If the Big Bang lump was symmetrical and experienced a central splitting force, which is the most logical possibility using Ockham's razor, then all these split products must be very tiny and the same size: i.e. the microbits. The unity of creation, then, is exhibited through the microbits, from physics, to biological evolution, to how consciousness arises (dealt with in the authors' other works).[148] We therefore need a totally new framework, one which is impossible to develop in the institutionalized foundational physics we have today. In his latest book, mainstream physics' theorist Lee Smolin echoes our unwritten thoughts, completely. He candidly admits that:

> I suspect it's hard for many physicists to imagine that we are not near the end of our search for the ultimate laws of nature. We have been raised in a culture in which it's all about having the right answer, and we owe our careers to scientists who had them. But I've always had in my head an image how much more people in the future will know, and how silly our claims to knowledge will look to them.[149]

We have also seen that the mis-prioritization of mathematics over physical evidence and experimentation and the neglection of cause and

[148] Refer to the *Microbits* series, *Volumes 1 and 2,* in the bibliography.
[149] Smolin, Lee, (2019), *Einstein's Unfinished Revolution: The Search for What Lies Beyond the Quantum*, Alfred A. Knopf, Toronto, p. 276.

effect and the principle of non-contradiction has led to an untenable situation plaguing physics and has, in reality, become an insurmountable stumbling block with this current attitude and outlook. In the book, *The Dream Universe*, astrophysicist David Lindley explains that current physicists have inverted the picture of the use of mathematics and have abandoned the correct methodology employed by Faraday, Newton etc. The mathematics that pragmatically solved problems of motion without knowing the underlying causes has now been taken to an extreme in not being able to explain the field as a mechanical mechanism. The action at a distance issue still remains but it is not part of the agenda to tackle in modern contemporary physics, as had been the wish of many physicists prior to the 20th century; many are concerned about equations being beautiful, which is very subjective and arbitrary (i.e. Dirac's equation by notation consolidation can be made to look simpler and thus beautiful); but even then many would not consider it beautiful. This has led to ideas that remain in the realm of philosophy and not science – as Lindley sees it – such as the untestable multiverse or extra dimensions in string theory. He ends his book with the following terse statement:

> As an intellectual exercise, fundamental [contemporary] physics retains a powerful fascination, at least for those few who are fully able to appreciate it. It's not that such research should cease altogether. But I wish its practitioners would take the trouble to ponder where they are going, and to what end.[150]

We would not be so gracious, and rather, say that such an exercise is utterly futile and must be abandoned to a realistic methodology espoused by the founders of the experimental method who also incorporated mathematics in its rightful place and therefore follow the principles discussed with respect to microbits, that seeks to describe actual motion in three-space and discover the laws of interaction in an

[150] Lindley, David, (2020). *The Dream Universe: How Fundamental Physics Lost Its Way*, p.201.

integrated way, through the simplest possible mechanism of one type of particle. If the assumptions are false, one develops an incorrect theory and then when that is mathematized, it has not much to do with reality. Something can be internally consistent but externally inconsistent; one needs both for correspondence with reality, to determine the truth. Tragically, our universities and research institutes have fallen into this trap; they realize it not, and if they perchance do, a spate of falsehoods is institutionalized for vested interests, covering-up reality.

Physicist Alexander Unzicker and Sheilla Jones in their penultimate chapter of their bold book *Bankrupting Physics*, state:

> To summarize, besides the obviously absurd theories such as strings, supersymmetry, cosmic inflation, there is a deep underlying crisis of allegedly "real" physics that is not widely perceived to date. Overly complicated models seem to be supported by evidence that has gradually shifted from genuine observation to a social consensus. Physics has become a fragile building that sooner or later will collapse.[151]

Sabine Hossenfelder concludes in her book, *Lost in Math*:

> We know that the laws of nature we presently have are incomplete. To complete them, we have to understand the quantum behaviour of space and time, overhauling either gravity of quantum physics, or maybe both. And the answer will no doubt raise new questions.[152]

So what of microbits? Microbits has the following 'going for it':

1. The Big Bang and expanding universe are accepted, in principle.
2. It is process physics of particulates but amenable to mathematical approximations for ensemble and emergent states (such as $F=ma$).

[151] Unzicker, Alexander and Jones, (2013). *Bankrupting Physics: How Today's Top Scientists are Gambling Away their Credibility*, p. 250.
[152] Hossenfelder, Sabine, (2018), *Lost in Math*, p. 236.

3. The laws are emergent and evolutionary and are a result of a type of crystallization of microbit groupings at different epochs during the universe's evolution.
4. The laws are determined by the nature of the unit particle itself and therefore set right at the beginning, in the Big Bang quasi-singularity itself.
5. It incorporates quantum effects.
6. It takes gravity as a real force, of physicality, based on the intricate repulsive, temporally co-joining and the concomitant attractive mechanism of microbits: an extremely sensitive balance, which if it were otherwise, no universe would exist. These actions of 'microbits' consequentially relate to the property of the very microbit itself, even to the extent of the precise and unchangeable nature of the characteristics of its squashability, stickiness and spin, as ultimate laws.
7. It is a binary system (microbits = 1, empty space = 0), which is the simplest possible explanation (only one type of particle in objectless 3 D space).
8. It does not confuse time as part of space.
9. It has the potential to eliminate all free parameters and logically explain all constants.
10. It does not beg the question at any level, in terms of causation and its materiality.
11. It explains the physicality of physics – the mechanism of all the 'forces' using simple principles shown as extensions of Newtonian Physics, with the result that it brings unity in physics (both the macro and the micro).
12. It solves the action at a distance problem.
13. It solves the 'speed of gravity' problem.
14. It shows the fallacious nature of Einsteinian illogicalities of reference frames (with respect to the speed of light constancy) and the indeterministic irrationality in quantum mechanics (with respect to the ontology of particles).

15. It explains the nature of the wave and particle effects of the passage of light.
16. And so on and so forth…(the list goes on and on and on!).

The challenges that remain have to do with the size of the microbit; we cannot observe it with our technology. However, if and when it is realized, in time, that quarks, electrons etc. are not fundamental particles, then we, globally, will be forced by logic and evidence to accept microbits. Another point of interest, though analogical, is that all the advances in genetics in the second half of the 20th century till now, and an understanding of biological development and aspects of evolution, have come through understanding DNA. Without this discovery, none of these other advances could have been made. Analogically, the microbit is the counterpart of the DNA, for without it you cannot really understand the universe and even consciousness and biological evolution (dealt with in another book by the authors).[153]

Could the microbitic solution then be the postulated 'people in the future' framework of reality that is now hidden in plain sight? Indeed, we have a parallel situation here, for if we learn from history we will realize the following: When it was assumed for millennia that planetary orbits were perfectly circular, and that the Earth was at the centre of the universe we had problems, in terms of the very observations of those planets (i.e. retrograde motion). Epicycles had to be introduced with other complicating concoctions to boot. Likewise, the ignorance that all particles are nothing but groupings of this basic unitary particle, and that actual contact is made at the microbit level, has led us into the current unenviable *cul-de-sac* situation in foundational physics, which is the basis of almost everything. Perhaps it is high time that we started to objectively understand that the universe originated from and is comprised of microbits. Microbits, a New Unified Physics offers the

[153] Haque, Nadeem, (2011). *From Microbits to Everything: Beyond Darwinism and Creationism: Volume 3: The Evolutionary Implications*, Optagon Publications Ltd.

vista of a causal, fully deterministic and unificatory framework that we should try to investigate, verify, recognize and then build upon. This will engender an appreciation of this amazing universe in a more holistic way. It will also help us solve many other philosophical problems, let alone further advancing our technologies. This rational outlook is long overdue.

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Appendix A

Further historical considerations

The following abridged article is a concise history of the development of Special Relativity and General Relativity by Physicist G. Burniston Brown. Due to the domination in academia with Einstein's theories and persona it did not receive attention that was due to it and we therefore including it in this book as being complementary to our discussion of this subject. The original article – whose excerpts we give below – was published by the *Bulletin* of The Institute of Physics and the Physical Society[77], pp. 71-77, March 1967 and is entitled *What is wrong with relativity?*

Genuine physicists – that is to say, physicists who make observations and experiments as well as theories – have always felt uneasy about 'relativity'. As Bridgman said, "if anything physical comes out of mathematics it must have been put in another form". The problem was, he said, to find out where the physics got into the theory (Bridgman 1927)[78]. This uneasiness was increased when it was clear that distinguished scientists like C. G. Darwin and Paul Langevin could be completely misled. Darwin wrote a fatherly letter to *Nature* (Darwin 1957) describing the simple way in which he explained 'relativity' to his friends: the simplicity, however, was due to the fact that, with the exception of a quoted formula, there was no relativity theory in it at all. Langevin, likewise, gave a supposedly 'relativistic' proof of the results of an optical experiment by Sagnac, but as his countryman André Metz said, although "assez élégant", it was not relativity (Metz 1952). There were other disturbing features: the fact that Einstein never wrote a definitive account of his theory; that his first derivation of the Lorentz transformation equations contained velocities of light

of c-v, c+v and $(c^2$-$v^2)^{1/2}$, quite contrary to his second postulate that the velocity of light was independent of the motion of the source; and that his first attempt to prove the formula $E = mc^2$, suggested by Poincaré, was fallacious because he assumed what he wanted to prove, as was shown by Ives (Ives 1952).[154]

It is not surprising, therefore, that genuine physicists were not impressed: they tended to agree with Rutherford. After Wilhelm Wien had tried to impress him with the splendours of relativity, without success, and exclaimed in despair "No Anglo-Saxon can understand relativity!", Rutherford guffawed and replied "No! they've got too much sense!"[Endnote 2] Let us see how sensible they were.

First of all, a little history. There is no need to repeat the accounts, now given in many textbooks, of the unsuccessful attempts to detect the aether. The simplest hypothesis, namely that the aether did not exist and that we were thus left with action-at-a-distance or ballistic transmission, was held to be unacceptable. Instead, Poincaré preferred to raise this failure to a 'principle' – the principle of relativity – saying: "The laws of physical phenomena must be the same for a 'fixed' observer as for an observer who has a uniform motion of translation relative to him, so that we have not, and cannot possibly have, any means of discerning whether we are, or are not, carried along by such a motion." As a result there would perhaps be "a whole new mechanics, where, the inertia increasing

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[154] Essentially, what Ives conclusively shows in his paper, cited by G. Burniston Brown entitled "Derivation of the Mass-Energy Relation", is that, "What Einstein did by setting down these equations (as "clear") was to introduce the relation:

$L/(m\text{-}m')\ c^2=1$.

Now this is the very relation the derivation [of Einstein] was supposed to yield….[Therefore because of this fundamental error the] relation $E=mc^2$ was not [in reality] derived by Einstein."

with the velocity, the velocity of light would become a limit that could not be exceeded" (Poinacré 1904). [155]

In the next year, 1905, Einstein re-stated Poincaré's principle of relativity and added the postulate that the velocity of light is independent of the velocity of its source. From the principle and the postulate he derived the Lorentz transformation equations, but in an unsatisfactory way as we have seen. Another curious feature of this now famous paper (Einstein 1905) is the absence of any reference to Poincaré or anyone else: as Max Born says, "It gives you the impression of quite a new venture. But that is, of course, as I have tried to explain, not true" (Born 1956).

In 1906 Planck worked out the 'new mechanics' predicted by Poincaré, obtaining the well-known formula

$$F = \frac{d}{dt}\left\{\frac{mv}{(1 - v^2/c^2)}\right\}$$

and the corresponding expressions for momentum and energy. In the next year he derived and used the mass- energy relation (Planck 1906, 1907).

In 1909, G. N. Lewis drew attention to the formula for the kinetic energy

$$\frac{m_o c^2}{(1-v^2/c^2)^{1/2}} - m_o c^2$$

and suggested that the last term should be interpreted as the energy of the particle at rest (Lewis 1909). Thus gradually arose the formula $E = m_O c^2$, suggested without general proof by Poincaré in 1900.

It will be seen that, contrary to popular belief, Einstein played only a minor part in arriving at the main ideas and in the derivation of useful formulae in the restricted, or special, theory of relativity, and Whittaker

[155] The late G. Burniston Brown's article is printed here by the permission of the Institute, whose website is: www.iop.org.

called it the relativity theory of Poincaré and Lorentz, pointing out that it had its origin in the theory of aether and electrons (Whittaker 1953). A recent careful investigation by Keswani confirms this opinion; he summarizes Poincaré's contribution as follows:

> "As far back as 1895, Poincaré, the innovator, had conjectured that it is impossible to detect absolute motion. In 1900 he introduced 'The principle of relative motion' which he later called by the equivalent terms 'The law of relativity' and 'The principle of relativity' in his book *Science and Hypothesis* published in 1902. He further asserted in this book that there is no absolute time and that we have no intuition of the 'simultaneity' of two 'events' [mark the words] occurring at two different places. In a lecture given in 1904, Poincaré reiterated the principle of relativity, described the method of synchronization of clocks with light signals, urged a more satisfactory theory of the electrodynamics of moving bodies based on Lorentz's ideas and predicted a new mechanics characterized by the rule that the velocity of light cannot be surpassed. This was followed in June 1905 by a mathematical paper entitled 'Sur la dynamique de l'électron', in which the connection between relativity (impossibility of detecting absolute motion) and the Lorentz transformation, given by Lorentz a year earlier, was recognized. [Endnote 3] In point of fact, therefore, Poincaré was not only the first to enunciate the principle, but he also discovered in Lorentz's work the necessary mathematical formulation of the principle. All this happened before Einstein's paper appeared (Keswani 1965)."

Einstein's attempt to derive the Lorentz transformation equations from the principle of relativity and the postulate that the velocity of light is independent of that of the source would (if it had not involved a contradiction) have made Lorentz

transformations independent of any particular assumption about the construction of matter (as it had not been in Lorentz's derivation). This feature, of course, was pleasing to the mathematically minded, and Pauli considered it an advance. Einstein said that the Lorentz transformations were "the real basis of the special relativity theory" (Einstein 1935), and this makes it clear that he had converted a theory which, in Lorentz's hands at any rate, was a physical theory (involving, for instance, contraction of matter when moving with respect to the aether) into something that is not a physical theory in the ordinary sense, but the physical interpretation of a set of algebraic transformations derived from a principle which turns out to be a rule about laws, together with a postulate which is, or could be, just the algebraic expression of a fact – the independence of the velocity of light of that of the source (experiments already done appear to confirm it but more direct evidence is needed). We see, then, that 'relativity' is not an ordinary physical theory: it is what Synge calls a "cuckoo process"; that is to say, Nature's laws must be found first, and then they can, perhaps, be adapted to comply with the overall 'principle'. "The eggs are laid, not on the bare ground to be hatched in the clear light of Greek logic, but in the nest of another bird, where they are warmed by the body of a foster mother, which, in the case of relativity, is Newton's physics of the 19th century" (Synge 1956).

The special theory of relativity is therefore founded on two postulates

(a) a law about laws (Poincaré's principle of relativity).
(b) an algebraic representation of what is, or could be, a fact (velocity of light constant, independent of the velocity of the source) and its application to the physical universe is
(c) a cuckoo process.

…But in this process there can be no guarantee that contradictions will not arise, and, in fact, serious contradictions have arisen which have marred the special theory. Half a century of argumentation has not removed them, and the device of calling them only apparent contradictions (paradoxes) has not succeeded in preventing the special theory of relativity from becoming untenable as a physical theory. The most outstanding contradiction is what the relativists call the clock paradox. We have two clocks, A and B, exactly similar in every way, moving relatively to one another with uniform velocity along a line joining them. If their own interaction is ignored and they are far removed from other matter, they continue to move with uniform velocity, and so each clock can be considered as being the origin of a set of inertial axes. The Lorentz transformations show that the clock which is treated as moving goes slow. The principle of relativity, however, asserts that, as A and B both provide inertial frames, they are equivalent for the description of Nature, and all mechanical phenomena take the same course of development in each. Referred to A, B goes slow; referred to B, A goes slow. It is not possible for each of two clocks to go slower than the other.

A more intriguing instance of this so-called 'time dilation' is the well-known 'twin paradox', where one of two twins goes for a journey and returns to find himself younger than his brother who remained behind. This case allows more scope for muddled thinking because acceleration can be brought into the discussion. Einstein maintained the greater youthfulness of the travelling twin, and admitted that it contradicts the principle of relativity, saying that acceleration must be the cause (Einstein 1918). In this he has been followed by relativists in a long controversy in many journals, much of which ably sustains the character of earlier speculations which Born describes as "monstrous" (Born 1956).

Surely there are three conclusive reasons why acceleration can have nothing to do with the time dilation calculated:

(i) By taking a sufficiently long journey the effects of acceleration at the start, turn-round and end could be made negligible compared with the uniform velocity time dilation which is proportional to the duration of the journey.

(ii) If there is no uniform time dilation, and the effect, if any, is due to acceleration, then the use of a formula depending only on the steady velocity and its duration cannot be justified.

(iii) There is, in principle, no need for acceleration. Twin A can get his velocity V before synchronizing his clock with that of twin B as he passes. He need not turn round: he could be passed by C who has a velocity V in the opposite direction, and who adjusts his clock to that of A as he passes. When C later passes B they can compare clock readings. As far as the theoretical experiment is concerned, C's clock can be considered to be A's clock returning without acceleration since, by hypothesis, all the clocks have the same rate when at rest together and change with motion in the same way independently of direction. [Endnote 4]

One more contradiction, this time in statics, may be mentioned: this is the lever with two equal arms at right angles and pivoted at the corner. It is kept in equilibrium by two equal forces producing equal and opposite couples. According to the Lorentz transformation equations referred to a system moving with respect to the lever system, the couples are no longer equal so the lever should be seen to rotate, which is, of course, absurd. Tolman tried to overcome this by saying that there was a flow of energy entering one lever arm and passing out through the pivot, just stopping the rotation! Overlooking the fact that energy is a metrical term and not anything physical (Brown 1965, 1966), there would presumably be some heating in the process which is not considered. Statics provides insuperable difficulties for the

physical interpretation of Lorentz transformation equations and this part of mechanics is avoided in the textbooks – in fact, Einstein omits statics in his definition: "The purpose of mechanics is to describe how bodies change their position in space with time" (Einstein 1920, p. 9).

The three examples which have been dealt with above show clearly that the difficulties are not paradoxes (apparent contradictions) but genuine contradictions which follow inevitably from the principle of relativity and the physical interpretations of the Lorentz transformations. The special theory of relativity is therefore untenable as a physical theory.

Turning now to the general theory of relativity, Einstein tells us in his autobiography (Einstein 1959) how, at the age of 12, he began to doubt Bible stories. "The consequence was a positively fanatic (orgy of) free- thinking coupled with the impression that youth is intentionally being deceived by the State through lies; it was a crushing impression. Suspicion against every kind of authority grew out of this experience, a sceptical attitude towards the convictions which were alive in any specific social environment – an attitude which has never again left me."

This sceptical attitude towards prevailing convictions possibly explains why Einstein was not satisfied with the relativity theory of Poincaré and Lorentz which stopped short of including accelerating systems, thus still leaving something apparently 'absolute'. He still seemed to be affected by this word 'absolute', but it is difficult to see what it could mean except with regard either to the Sensorium of God (Newton) or an aether pervading all space. He pushed on, therefore, with an attempt to show that natural laws must be expressed by equations which are covariant under a group of continuous coordinate transformations. This group, which Einstein took as the algebraic expression of a general principle of relativity, included, as a subgroup, the Lorentz transformations which Poincaré had taken as the algebraic expression of the restricted principle.

To overcome the physical difficulty that acceleration produces forces (inertial) whereas uniform velocity does not, Einstein was led to assert that these forces cannot be distinguished from ordinary gravitational force, and are therefore not an absolute test of acceleration. This contention Einstein called the principle of equivalence. In trying to support this contention, he imagined a large closed chest which was first at rest on the surface of a large body like the Earth, and then later removed to a great distance from other matter where it was pulled by a rope until its acceleration was g. No experiment made inside could, he claimed, detect the difference in the two cases. But in this he was mistaken, as I have shown (Brown 1960). In the first case, if two simple pendulums were suspended with their threads a foot apart, the threads would not be parallel but point towards the centre of mass of the Earth (or a point somewhat nearer allowing for their mutual attraction). The angle between them would, in principle, be detectable by the Mount Palomar telescope. When accelerated by a rope, the threads would be parallel if it were not for the small mutual attraction. If now, the threads were moved so as to be further apart, the angle between them would increase in the first case, but in the second case the threads would become more parallel so that the angle would therefore decrease. The principle of equivalence is therefore untenable. It is gratifying to find one theoretician who states that the principle is false (Synge 1960): "In Einstein's theory there is a gravitational field or there is none, according as the Riemann tensor does or does not vanish. This is an absolute property: it has nothing to do with the observer's world-line." The principle of equivalence is made plausible by the use of the expression 'gravitational field', overlooking the fact that this is a useful conception but cannot be demonstrated. All we can do is place a test particle at the point in question and measure the force on it. This might be action-at-a- distance. As soon as the term 'field' is dropped and we talk about the gravitational force between bodies at rest, we realize that the force is centripetal, whereas the force of inertia is not. This is an important difference obscured by the use of the word

'field'. Relativists now admit that the principle of equivalence only holds at a point; but then, of course, we have left physics for geometry – experiments cannot be made at a point.

This contact with the physical world having gone, we are left in the general theory only with the principle of covariance – that the *laws* of physics must be expressed in a form independent of the coordinate system, and the mathematical development of this condition which Einstein did with Grassman and others. Unfortunately, given sufficient ingenuity, almost any law of physics can be expressed in covariant form, so that the principle imposes no necessary restriction on the nature of these laws. The principle is therefore barren, and Einstein had to regard it as merely of heuristic significance (by considering only the *simplest* laws in accord with it (Einstein 1959, p. 39)). Also the number of problems which can be completely formulated, let alone solved, is extremely small. Some relativists look on it rather as an encumbrance (Fock 1959). The three consequences stemming from Einstein's theory of gravitation, that are usually brought forward as supporting it, are also not impressive. The movement of the perihelion of Mercury was known before and can be explained in various ways (Whittaker 1953). The 'bending of light' round the Sun had been suggested before, and the much advertised confirmation in the eclipse of 1919 involved assuming Einstein's law of 'bending' to obtain the 'scale constants', with the help of which the results were derived which were supposed to prove it. The deflections of stars that moved transversely or in the opposite direction to that predicted were omitted. The mean deviation and its direction varied from plate to plate during the eclipse, suggesting refraction in a turbulent diffuse 'atmosphere'. Nevertheless a mean value was obtained "in exact accord with the requirements of the Einstein theory" (*Lick Observatory Bulletin* 1922, No. 346). Later attempts have given different values. This must be one of the most extraordinary self-deceptions in the whole history of science (see Poor 1930). The gravitational red shift of light now appears to be confirmed, but this follows from Mach's

hypothesis[Endnote 5] that inertial forces are due to interaction with the distant bodies of the Universe[Endnote 6] and does not require 'relativity' as the author has shown (Brown 1955).

We see, then, that the general theory is based physically on a fallacy (principle of equivalence) and on a principle that is barren (covariance) and which is also, mathematically, almost intractable. Genuine physicists may well agree with Fock that it is not a major contribution to physics.

The whole subject of 'relativity' is extremely interesting looked at from the point of view of scientific method. Western science long ago involved the rejection of the view that Nature's ways can be found by just taking thought, or by the adoption of principles based on reason alone, or beauty, or simplicity. The idea of perfection in the heavens, as we know, held back astronomy with epicycles and caused sunspots to be explained away.

Newtonian method consists in first establishing the facts by careful observation and experiment, and then proceeding to attempt an explanation of them in physical terms – matter, motion and force – then from such a theory to derive, by logic and mathematics, various principles (e.g. conservation of momentum) as well as further consequences which can be put to experimental test. Natural science is concerned with causes: logic and mathematics are only tools. Newton made this clear when, after giving the first satisfactory explanation of the tides, he said: "Thus I have explained the causes of the motion of the . . . Sea. Now it is fit to subjoin something concerning the quantity of those motions." But relativists now assert that "The dignity of pure theoretical speculation has been rehabilitated . . . based on a process of the mind with its own justification" (shades of Descartes!). Relativity "has saved science from narrow experimentalism, it has emphasized the part which beauty and simplicity must play in the formulation of theories of the physical world" (Mercier 1955)…

Belief in principles because of their mathematical elegance, or cogency, leads also to a distortion of physics, its purpose and its history. Most of the discussion about observers and their imagined measurements is

remote from anything that physicists do. Having to call force a fiction, which it cannot be by definition, since we have a special set of deep-seated nerves for detecting it, and asserting that it can be removed by a mere transformation of axes illustrate distortions of physics which are common. Even distortion of mathematics occurs in Einstein's later attempt to derive the Lorentz transformation equations from the principle of relativity together with algebraic expression of the constancy of the velocity of light. In this proof he is forced, as Essen has pointed out (Essen 1962), to use the same symbol for two different quantities, and later he derives a dimensionally impossible equation by putting a length equal to unity (Einstein 1920). [Endnote 7] It is difficult not to repeat Keswani's comments on Einstein's first (1905) proof: "The steps taken have a curiously compensating effect and apparently the demonstration was driven towards the result" (Keswani 1965).

The distortion of the purpose of physics has already been exemplified by Einstein's definition of mechanics which leaves out statics. "The object of physics is to predict the results of given experiments concerning stated events", says McCrea (McCrea 1952), but the business of physicists is with "the causes of sensible effects", as Newton said – *causes*, not just rules and predictions. The distortions of the history of physics are too common to be worth detailed mention: many papers and broadcast lectures begin with a travesty of Newton's views….

What then remains of the theory? The Lorentz transformations have proved not to be the necessary formulation of the principle of relativity, as Poincaré believed, since physical interpretations of them have contradicted the principle. When applied, perspicaciously, to Newtonian physics they produce formulae which are certainly superior to the 'classical' ones at high speeds. But the Lorentz transformation equations were first derived and used by Voigt in 1887 in connection with elasticity, and later, again, by Lorentz in connection with the electron theory of matter, and do not depend on 'relativity' for their derivation.[Endnote 8] The placing of the Lorentz term $(1- v^2/c^2)^{1/2}$ under m, the mass, following Poincaré's prediction of a velocity c that cannot be exceeded

by matter, has been supported by experiments with accelerators (relative to the machine). Once again, however, interpretations of algebra are not a substitute for genuine physical theory: the interaction of a particle with distant matter (force of inertia), tending to infinity when *v* approaches *c*, is not the only physical interpretation; it may be that interaction with nearby matter (the accelerating force) may tend to zero when *v* approaches *c*. This hypothesis, for example, avoids the supposition of an enormous amount of matter in the Universe for which there is no evidence (Brown 1955, 1957, 1958, 1963). The general theory has been well summed up by Fock: "It is…incorrect to call Einstein's theory of gravitation a 'General theory of relativity' all the more since 'The general principle of relativity' is impossible under any physical condition."

"The general covariance of equations has quite a different meaning from the physical principle of relativity; it is merely a formal property of the equations which allows one to write them down without prejudging the question of what coordinate system to use. The solution of equations written in generally covariant form involves four arbitrary functions; but the indeterminacy arising from this has no fundamental importance and does not express any kind of 'general relativity'. From a practical point of view such an indeterminacy even represents something of a disadvantage" (Fock 1959).

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Endnotes for G. Burniston Brown's article.

1. The substance of lectures given to the Royal Institute of Philosophy, University College Chemical and Physical Society, The Institute of Science Technicians, etc.
2. Quoted from the Rutherford Memorial Lecture to the Physical Society 1954 by P. M. S. Blackett (Year Book of the Physical Society 1955).
3. Gravitational waves with velocity c and the velocity addition formula should be included (Keswani 1966).
4. I am indebted to Lord Halsbury for pointing this out to me.
5. Einstein and others call it Mach's principle, but it is not a principle – it is a physical hypothesis.
6. Newton considered this possibility (see Brown 1943).
7. Relativists seem to be rather shaky on dimensions: has not Eddington told us that the mass of the Sun is 1.47 km, and have we not been favoured with a revelation from Ireland that 1° centigrade = 3.804 x 10-76 seconds (Synge 1960)?
8. They can be derived without the principle (see Capildeo 1967).

Appendix B

Crucial note on the conservation of mass and energy (and the calculation for Mercury's perihelion advance[156]).

One can see that the same relative change of mass-energy must also exist on the standard reference kilogram used on Earth's orbit from the Sun. The standard reference kilogram can be defined by an absolute number of atoms. The standard kilogram simply contains a much larger number of atoms than a grain of sand. The principle of mass-energy conservation requires that one Mercury-kilogram (at Mercury distance from the Sun) contains slightly less mass-energy than the Earth-kilogram (at Earth distance from the Sun), even if the number of atoms is exactly the same. That change of mass of each atom is real. It is not an illusion. This is required by the principle of mass-energy conservation.

There are several other logical consequences to that change of mass of bodies, due to gravitational or kinetic energies. Since the real physical mass of bodies changes when we add energy, one must realize that particles, like electrons and protons of atoms, forming those masses must logically also change their mass, exactly in the same proportion as atoms. Furthermore, using quantum mechanics [1], one can show that

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[156] Appendix B is an extract from: Marmet, Paul. *A Detailed Classical Description of the Advance of the Perihelion of Mercury*. (newtonphysics.on.ca)

Reference [1]: P. Marmet, "Einstein's Theory of Relativity versus Classical Mechanics", Ed. Newton Physics Books, 200 pages (1997), Ogilvie Rd. Gloucester, On. Canada, K1J 7N4, also on the internet at the address: http://www.newtonphysics.on.ca/einstein/index.html

a change of electron and proton mass modifies the length of the Bohr radius. Due to that change of the Bohr radius, the physical lengths of bodies and the energy of the quantum levels change when gravitational or kinetic energy is added to a mass.

Following the change of the Bohr radius, quantum mechanics also predicts a change of quantum levels, due to the change of electron mass, implying also a corresponding change of rate of atomic clocks [1] . It is also required that all matter, including organic matter and even human bodies, function at a different rate when electrons forming them have acquired or released some potential or kinetic energies. Since Mercury in its orbit has a different gravitational energy and possesses a different kinetic energy, matter on Mercury (i.e. due to its Mercury distance from the Sun) has a different mass. In addition, clocks on Mercury are functioning at a different rate due to the change of electron mass.

However, we have seen above that that change of mass, length and clock rate is undetectable, because matter from this frame, that forms the standards of reference in a frame, changes in the same proportion as the local matter being investigated inside the same frame. Consequently, the experimental parameters (number of units) measured in the energetic frame are identical to the ones in the initial frame, but they are not coherent with the increase of mass-energy between the two systems of reference. Since the increase of mass-energy in the energetic frame is real, the numerical values measured inside the energetic frame are not compatible with the principle of mass-energy conservation and therefore are in error. The relative size of the standard references must be calculated. The relationships transforming the standard units between locations at different gravitational potentials and different velocities have already been calculated [1] . The length of the radius of the orbit of Mercury is a number which is equal to the number of Mercury-meters times the length of the local standard Mercury-meter. However, that number is not equal to the ***number*** of Earth-meters to measure the same orbit of Mercury, because it is measured using the shorter Earth-meter. We must notice that Newton's

laws of physics deals with the ***numbers*** that are fed into the equations. Since the ***number*** of meters to measure the "***same physical length***" (using the longer Mercury meters) is smaller than the ***number*** of Earth meters, we must take that difference into account.

In physics, there exist several systems of units using meters, feet, kilograms, pounds, coulombs, statcoulombs, abcoulombs etc. that have been devised in a coherent way so that the coherent use of any set of reference units leads to answers which are compatible, independently of any system of units. In fact, one has a complete choice of systems of reference units that leads to the same "***physical"*** answer, although represented by different numbers when using units having different names. However, contrarily to the above, when we apply the principle of mass-energy conservation between frames, the units of mass, energy, lengths and clock rates in different frames cannot be the same. Most importantly, the principle of mass-energy conservation must be satisfied. The correct calculation requires coherence between frame. Therefore, the local number of units must be corrected with respect to the Earth value considered at infinity. We show here below, that this logical correction explains perfectly the advance of the perihelion of Mercury without any relativity principle.

In the calculation below, for simplicity, we make the approximation that the Earth is infinitely remote from the Sun. Therefore, we consider that the Earth is located in Outer Space. The number of meters of the Earth from the Sun is noted "$N_{O.S.}$". Corrections due to the residual Earth gravitational potential can be easily done later. Furthermore, when we say that a mass is near Mercury, one must understand that it is at a location near the Mercury orbit, assuming that the gravitational energy due to Mercury is zero.

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