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A New Science Tool

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We now have a new science tool at our disposal.

"Someday we'll understand the whole thing as one single marvelous vision that will seem so overwhelmingly simple and beautiful that we may say to each other, 'Oh, how could he have been so stupid for so long? How could it have been otherwise!'" (John A. Wheeler)

But first a bit of humanity before we get to the science.

I've just returned from Orlando, Florida where I toured Disney World with my three granddaughters. Two are 8 and one is 6. Their grandfather will never forget sitting amidst them in the Disney 3D movie watching them stretch out their little arms to try to catch the Disney creature images that, every now and then, seemed to appear a foot or so in front of them.

At Disney World I told one of my granddaughters, Megan, 8, "It's too dark in here. It needs more light." She answered, "It's supposed to be dark, grandpa."

Next to me sat Beca, 6, who already had been at Disney World three days. We were on a splash ride that entered a dark tunnel. I told Beca that I was afraid and I wanted to go back. She emphatically stated, "It's too late to go back now, grandpa." And then, utilizing her three days of experience, added, "This is gonna be boring."

To Katie, 8, I said, "I'm slowing down." To which she replied, "You walk fast for your age, grandpa." Then she did steps about an inch apart and said, "Some walk like this."

But then I came back home to find static on my telephone dial tone with the result that none of my computers could get on the internet anymore with my Bell South internet account. The Bell South folks promptly let me know that since the phone worked OK, they didn't regard this as their problem. But I knew it was because their phone line has been lying in the road now for over a year and they seem to be in no hurry to get it back up on the poles where it belongs. So while I decided what to do next, I started writing this paper. These written words below have been long, long overdue in coming.

Some of

A NEW Science Tool

Can also be found in this lengthy *web page*

But I'll spell it out more clearly, precisely and completely abridged herein.

I'll give you an approximate big picture of how you can visualize the four fundamental forces as being unified.

Einstein was right. The answer is simple and, exactly as Einstein said, extremely subtle. It's so subtle, in fact, that the majority are not going to believe it for quite a while. Quantum mechanics has unmistakably shown, this is a resonance universe and future super computers will indeed show us that what we have is an infinite frequency spectrum in which we must consider - as we presently do with light - **both** the **scalar** and **vector** aspects of it. We will then know exactly how in phase waves and out of phase waves, working together with impedance matching and balance, gives us this Unified Field that Einstein looked for. These future super computers, that Stephen Wofram tells us will give us the answer, will give us an accuracy undreamed of as well.

But that's tomorrow and not today.

Today, though, you can get an approximate big picture of how it all works by using this **NEW Science Tool** that Ampere partially put together in 1824. You will simply need this along with the concept of **motion**. You must also understand that the 90 degree torque of gyroscopic inertia exists in the microcosm and macrocosm as well as here. For energy transfer you must understand impedance matching. Mach's principle and a **scalar** wave type of balancing are involved as well.

That's about all you need to know for an approximate big picture of how this universe works and how the four fundamental forces are unified.

You will see, when you finish this study, that our minds have somehow utilized the principle involved in Occam's Razor to derive this concept of **motion**, that we all seem to think we understand. Our minds put together this sense of **motion** from in phase and out of phase resonances because that's really all that exists in this all resonance universe.

But next is the important step that everyone seems to have missed.

Because our concept of **motion** stems really from phase differences, then we can use **motion** as a short cut and entirely forget about waves or resonances and view this approximate big picture of unification by seeing things as solids having **motion** and gyro torque in various spacetime realms. It's as simple as that.

Bear in mind, this is merely an **approximation** that I'm giving you herein.

Please remember the real reason behind all this are in phase and out of phase resonance reactions that I'll also go into a bit.

***

Retired MIT mathematical physicist *Dr. Milo Wolff* and I have enjoyed our many e-mails on this internet. He uses a Mac and I use a PC but that doesn't keep us from combining our efforts to figure out what makes this universe tick.

Milo has a very important part of the picture figured out.

Others have various chunks of this great science enigma solved as well.

Marconi said that scientists - before him - had all the pieces of the puzzle figured out and that he essentially put these various pieces together to make the first functioning radio transmitter and receiver.

I'm going to do something similar here..

We'll look at what Milo has found and what others have found and then we'll put it all together to see how this universe really works.

The individual pieces of the puzzle have been satisfactorily clarified yet no one has put all these pieces together yet.

So I'm going to do it now with this.

I will tell you the correct assumptions of people and theories. When you finish this then you will see which parts of which theories are wrong yourself.

Chapter 1.

Milo Wolff and String Theory

Essentially Milo Wolff and String Theory are **both** telling us that this is a resonance type universe. Quantum mechanics gives us this very same resonance message as well. Viv Pope correctly warns us that water and sound waves need a medium in which to work but these resonances do not. We will be covering the reason that they do **not** need a medium, such as this long sought after aether. It's a very simple reason. It is the same reason that force is not used at all in the tensor math of general relativity. What **is** used in the tensor math of general relativity is that either more or less space, than average, is being created, which in turn equates into force. Einstein hit it right on the nose with that solution. This is exactly what is happening because space is constantly being created for us. And this - as shown to us by Einstein - creates **all** our forces. This is why, not only the four fundamental forces, but **all** the forces, can now be unified by seeing them merely as either more or less than the average amount of space being produced similar to the way the tensor math of general relativity sees it. By the way, space turns out to be frequency conscious and time is as well, which you will plainly see as you read on.

Let's start off with an infinite frequency spectrum.

Now let's look at light the way it was originally seen as a **scalar** wave resonance by Christiaan Huygens.

Then look at each **single** quantum of light, which is distinctly a **vector** individual force between two electrons.

The surprise is, as Milo Wolff found, that not only is light designed this way but an electron is also. So not only does light appear to be both a wave and a particle but everything we see as solid can be seen as both wave and particle as well.

The electron now has to be seen as a **scalar** wave resonance within this infinite frequency spectrum. This **scalar** wave resonance (electron) is itself built up of millions of higher frequency **vector** resonances just as light is built up of numerous individual **vector** force type quantum units.

The electron's spin produces a lower frequency **vector** type force between two spinning electrons. A multiple number of these forces inside the time period of one unit of momentum *h* (Planck's constant, another **scalar** resonance) is what gives us our time clock for our particular spin/orbit frequency realm.

Now consider an infinite frequency spectrum with **scalar** wave entities such as: the quark and the electron at different **scalar** frequencies like two keys on a piano keyboard of infinite length. We can only see a limited number of piano keys going from higher frequency to lower such as: neutrino, quark, proton-neutron, electron, solar system, galaxy, super cluster.

Each of these can be seen as a **scalar** wave entity. Each is a **scalar** wave entity with an entirely different symmetry of construction and each being a **scalar** harmonic of the **scalar** entities in its microcosm and macrocosm. The real secret of these **scalar** wave entities is that they are at distant enough harmonics not to be able to destroy each other (normally) but close enough harmonically to be able to link somewhat with their higher and lower frequency neighbor universe grand piano keys.

What we term smaller and larger should really be termed higher and lower **scalar** wave frequencies.

Thus every spin frequency; every orbit or orbital frequency; every spin precession frequency (720 degrees for the electron [*h*-bar]); every orbital precession frequency (*h*) becomes a veritable ticking clock that determines time. But for today's accuracy we can simply use **one** clock for every spin/orbit frequency realm.

This is really what we are doing today with gauge rules using QCD gauge rules and its special math for the quarks and

QED gauge rules and different math for the electron and present science rules and math for us humans here on earth.

Therefore in this infinite frequency spectrum what we really have are these **scalar** wave entities spinning and creating numerous lower frequency **vector** quantum type forces. Multiples of these produce even lower frequency **scalar** resonances whose spins produce even lower frequency **vector** forces and multiples of these produce even lower frequency **scalar** resonances and this goes on and on and on and on probably ad infinitum.

There will be no such thing as a smallest particle. In fact the term smaller has to really mean higher frequency.

Space should be seen as being produced via **vector** resonances while **time** is best seen being produced via **scalar** resonances. This will be covered herein and in detail on my *web page* and the free science e-books on that page.

Milo Wolff stresses that the electron is a **standing wave** resonance. This is true.

Standing waves are those waves that are **not** absorbed by the surroundings.

Milo has mathematically proven that the electron is a **scalar** wave resonance between each electron wave center and the Hubble limit of our universe. This is absolutely true.

If you drop a pebble into the water then the waves produced will be a **scalar** wave resonance because at any specific radius from the center, the waves in that circular ring, will all be **in phase**.

While these **scalar** water waves are only in one 2D plane, the electron has a 3D **spherical** standing wave pattern.

But the **big** difference between the electron and the water waves is that the electron is a **scalar**, **standing wave** resonance and the waves from the pebble are **not** because they are ultimately absorbed by the surrounding water medium.

Again: **Standing waves** are those that are **not** absorbed by the surroundings.

Take the water wave picture where each ring of waves is in phase. This will aid you in a 3D onion layer picture of the electron where the waves, in each layer, are **in phase** and are **standing waves** that are **not** absorbed by the surroundings.

All particles that can be seen as solid have a similar onion ring pattern where the waves in a specific layer, at any instant, are **in phase**.

We have known, for many centuries now, that what we see are not waves but wave fronts, where all waves in each wave front are **in phase**.

There are longitudinal waves such as sound waves and transverse waves such as water, radio and light waves, which we can see as waves. We cannot see a 3D **scalar** wave pattern as a wave pattern like we can see a **scalar** water wave 2D pattern. The reason for this is the same as where we cannot see the layers in an onion until we cut it. We see a 3D **scalar**, **spherical** wave pattern as an entity. We see a 3D onion layered, **scalar**, standing wave pattern as a round, spherical, solid entity. You can even read a bit more about the *importance of SCALAR WAVES*.

You will see, as you search the internet, that Russian scientists seem to predominate in **scalar** wave knowledge.

An electron, as a unit, cannot go faster than the speed of light but certain phase waves can and do go faster then the speed of light.

String Theory provides us with the concept of a 1D string that vibrates to give a 2D membrane or Brane. This is a correct concept. But do we really have the many dimensions of String Theory and things such as Hilbert space? For mathematicians the answer is yes. But since **I'm going to avoid the math**, which can, in this case, lead to contradictions, I will be emphasizing spacetime realms instead of dimensions. Note the following **Britannica** 1997 CD **article.**

Hilbert, David

In 1905 (and again from 1918) Hilbert attempted to lay a firm foundation for mathematics by proving consistency--that is, that finite steps of reasoning in logic could not lead to a contradiction. But in 1931 the Austrian-U.S. mathematician Kurt Goedel showed this goal to be unattainable: propositions may be formulated that are undecidable; thus, it cannot be known

with certainty that mathematical axioms do not lead to contradictions. Nevertheless, the development of logic after Hilbert was different, for he established the formalistic foundations of mathematics.

So let's avoid the contradictions.

As I said, to simplify the picture, I'll avoid the many dimensions of string theory. Instead, we'll cover something similar called spin/orbit spacetime realms. There are several important ones of these, which we will go into.

I believe in Occam's Razor. So I'll use it to cut out all the fat and make it simple.

Since both protons and neutrons are themselves composed of quarks I'm going to bypass the protons and neutrons entirely and talk mainly about quarks and electrons.

All things composed of atoms (quarks and electrons) will have the same spacetime realm in which the spacetime interval is invariant. Since humans must be built of atoms then humans are restricted to one spacetime realm, which has only one invariant spacetime interval.

I'd better explain this.

String theory is correct in assuming a 2D Brane universe. Our **entire** universe is such. It actually has no space and no time per se. **Time and space are restricted to subset spacetime realms.** This may be somewhat hard to digest but it is nevertheless true.

From where do we get all this space and time in our spacetime realm?

In the particular spacetime realm in which our eyes work it's produced for us by the electrons. These encircle each of the atoms from which we are made.

SPACE detection, for us, is done in much the same way as it is done in a superheterodyne detector circuit where an oscillator frequency is utilized. Our **space** is obtained via multiple, dual electron to electron **vector** spin frequency resonance reactions, beating with String Theory's 2D Brane to give us a 3D **space**.

We get our **TIME** via the electron's **scalar** wave frequency reacting with this 3D space to give us our 3D space plus time or 4D spacetime.

Remember, the spacetime interval contained in this 4D spacetime is only invariant in this quark - electron atomically constructed realm where electron orbitals exist..

What do I mean by this?

In the microcosm the proton or neutron tri-quark realm is **not** our 4D spacetime realm.

The **scalar** frequency of the quark is the square of the electron's **scalar** frequency thus the fastest time in the tri-quark spacetime realm is related to c^2 compared to c in our spacetime realm. Also the spacetime interval in the tri-quark realm is different from the spacetime interval in our spacetime realm.

Motion gets **entirely** balanced out, much like a **scalar** wave action, in our spacetime realm at the rate of c or the speed of light or $3x10^8$ meters per second.

Motion gets **entirely** balanced out much like a **scalar** wave action, in the tri-quark's spacetime realm at the rate of c^2 or the speed of $9x10^{16}$ meters per second.

Mathematicians will say you cannot square a speed and get another faster speed and this is true. I am simply relating what is happening in our math and giving us the quantity c^2, which is far too fast a speed for our realm but **not** too fast a speed for the quark realm.

When you square a speed you really get acceleration and this is what c^2 is. This is why we have the principle of equivalence and that gravitational attraction can not be discerned from acceleration.

What we learn from c^2.is that the *Speed of Gravity is $9x10^{16}$ meters per second.*

And this faster than light speed has been proven by *Van Flandern*. He may have been the very first scientist to see that there is noticeable aberration with light but absolutely no noticeable aberration with gravity, thus proving the speed of gravity has to be much, much faster than the speed of light. Astronomical students at Yale and many other major universities have been taught - for decades now - that in order for this universe to be stable, gravity must be acting much, much faster than the speed of light.

This c^2 or the $9x10^{16}$ meters per second - in the tri-quark proton or neutron realm - relates to the speed that spinning quarks bind with other either near or distant spinning quarks via *Ampere's Laws* to give us gravity and inertia.

Quarks spin bind with other near or distant quarks at the speed of $9x10^{16}$ meters per second giving us inertia and gravity. Electrons spin bind with other near or distant electrons via *Ampere's Laws* at the speed of c or $3x10^8$ meters per second to give us magnetism and sigma and pi chemical bonding. The electron's spacetime interval is the square root of the tri-quark's spacetime interval. We can see every move that is made in the macrocosm as we look at galaxies. This is not so as we look into the microcosm where the electron's blitzzeit (shortest interval of the electron's time) allows us only to see the square root of the happenings in one quark realm blitzzeit (shortest interval of time in the quark realm)

In both of these abovementioned quark and electron cases the individual spin binding force does not fall off with distance. The **number** of entities binding is what falls off with the square of the distance.

Spacetime intervals (today's accuracy) are all invariant throughout their own particular spacetime, spin/orbit frequency realms.

If Wheeler and Feynman are correct, we would be able to detect this speed of $9x10^{16}$ meters per second (it's already been done in our math) but we should never be able to measure this speed directly in our spacetime realm.

Quarks spin binding with other quarks to cause gravity implies the possibility that Christiaan Huygens was right all the time. Note the following **Britannica** 1997 CD **article.**

Huygens visited London in 1689 and met Sir Isaac Newton and lectured on his own theory of gravitation before the Royal Society. Although he did not engage in public controversy with Newton directly, it is evident from Huygens' correspondence, especially that with Leibniz, that in spite of his generous admiration for the mathematical ingenuity of the Principia, he regarded a theory of gravity that was devoid of any mechanical explanation as fundamentally unacceptable. His own theory, published in 1690 in his Discours de la cause de la pesanteur ("Discourse on the Cause of Gravity"), though dating at least to 1669, included a mechanical explanation of gravity based on **Cartesian vortices**. Huygens' Traité de la Lumière (Treatise on Light), already largely completed by 1678, was also published in 1690. In it he again showed his need for ultimate mechanical explanations in his discussion of the nature of light. But his beautiful explanations of reflection and refraction--far superior to those of Newton--were entirely independent of mechanical explanations, being based solely on the so-called Huygens' principle of secondary wave fronts.

As a mathematician Huygens had great talent rather than genius of the first order. He sometimes found difficulty in following the innovations of Leibniz and others, but he was admired by Newton because of his love for the old synthetic methods. For almost the whole of the 18th century his work in both dynamics and light was overshadowed by that of Newton. In gravitation his theory was never taken seriously and remains today of historical interest only. But his work on rotating bodies and his contributions to the theory of light were of lasting importance. Forgotten until the early 19th century, these latter appear today as one of the most brilliant and original contributions to modern science and will always be remembered by the principle bearing his name.

Did Huygens' **Cartesian vortices** correctly predict quarks spin binding with other quarks?

QED with its different math and rules from QCD is sending us a message: the gauge rules of QED are different from the gauge rules of QCD. These are both different from our gauge rules here in our spacetime realm determined by Planck's

constant, *h* which is the unit of momentum in one complete cycle of the electron's precessing while it orbits, until it returns to its original spot.

The electron has to make many orbits and precess many times before it returns to its initial spot giving the momentum (*h*) This means our detectors for our **time** in our spacetime realm here are going to be at a much lower **scalar** harmonic than that for QED. And the QED basic **scalar** frequency will, in turn, be at a much lower harmonic from QCD.

If today's accuracy is all that is needed then this above message tells us that each spin/orbit frequency realm is best seen as a distinctly different spacetime realm having its own invariant spacetime interval and its own time, space and **motion**.

All different type particles are at distant **scalar** harmonics from each other but the quark and electron may be an exception to this rule because they are at a relatively close **scalar** harmonic frequency to each other. This undoubtedly is why the symmetry of our atomic microcosm is so different from the symmetry we see in the galaxies in our macrocosm. But you must keep in mind they both are built upon the same basic principles providing you consider what Ampere found.

Our present science, however, is constructed upon **not** what Ampere found but upon the picture that Faraday put forth.

Chapter 2

Dirac's Prediction

If Andre Ampere was alive today then he would realize that what he discovered in 1824 would give us what Dirac predicted we would eventually get: an approximation of how this universe really was working.

Ampere's Laws

or

Aufbau Laws

or

the "A" Laws

What no one seems to realize is that there is no math for universal laws such as Ampere discovered. Our present math is only designed for subset, spacetime realm rules. If Kurt Goedel's proof is correct, which I think it is, then all our science is nothing more than a vast collection of subset rules that we incorrectly THINK may be universal laws.

About the same time, in the early 1800s, Ampere and Faraday gave us their rules for electricity and magnetism. We built our science upon the Faraday subset rule structure, which ensured we would never be able to unify the forces using this type science. We did not realize that Ampere had given us not only laws for electricity and magnetism but he had given us universal laws utilizing relative **motion** that showed us how this entire universe functioned.

Feynman realized that our concept of **motion** was a very important concept that we were actually using as we were beginning to unify the fundamental forces. I will give you this short quote form Feynman's famous QED.

QED

The Strange Theory of Light and Matter

author

Richard P. Feynman

(Please note the emphasis Feynman puts on **motion** being the unifying element in all these separate fields)

". . . it was soon discovered, after Sir Isaac explained the laws of motion, that some of these apparently different things were aspects of the same thing. For example, the phenomena of sound could be completely understood in the motion of atoms in the air. So sound was no longer considered something in addition to motion. It was also discovered that heat phenomena was easily understandable from the laws of motion. In this way great globs of physics were synthesized into a simplified theory. The theory of gravitation, on the other hand, was not understandable from the laws of motion, and even today it stands isolated from the other theories. Gravitation is, so far, not understandable in terms of . . . "

motion or relative motion that produces not only gravity but all the forces, that I explained and published in this 1966 relative motion book below: (This e-book is free**)**

Fitzpatrick's First Book

ABSTRACT of the above book:

You do NOT need to visualize four separate fundamental forces when these is really only one force that can easily be viewed by using a frequency modification of *Ampere's 1824 Laws*.

This Britannica article http://www.britannica.com/eb/article?tocId=9074111 tells you about Uhlenbeck and Goudsmit who were denied the Nobel Prize in 1925, when they discovered electron spin, because of the quantum theorists who insisted that spin **motion** - similar to what we see - was not there.

The quantum scientists are correct, in a way, because all **motion** gets balanced out in time. The **motion** in the microcosm is on repetitive geodesics. Time in the microcosm goes much faster than time does for us. Our clock beats at a lower harmonic from the microcosm's clock. In the shortest interval of our time - one blizzeit of our time - everything in the microcosm has returned to its original spot so we see no motion. The only thing we see is evidence of a light or heat or other type wave showing it has shifted to a higher or lower energy level.

Quantum theorists still adamantly insist that our type of spin **motion** is **not** in the quantum realm even though we find - as Goudsmit and Uhlenbeck did, **all the signs of angular momentum**, that our type of spin **motion** produces.

In a way, (for good and substantial reasons, in fact) the quantum theorists are correct.

Why isn't our type of **motion** seen in the microcosm?

Motion, space and time are all things that are restricted to one single, subset, spin/orbit frequency

realm.

Why?

Because all detectors (ours too**) have oscillators in them detecting exactly like a superheterodyne detector does.**

Only the evidence (of motion) can be transferred out of a spacetime realm. Didn't Wheeler and Feynman show us.this?

The fastest planet in our solar system is Mercury. It is going around the sun at a speed of 48 thousand meters per second and that is .00016 of the speed of light. Comets also travel close to this speed. We need to use relativity corrections at approximately this speed as well. The fact that comets begin to sublimate when approaching the sun at this speed makes every sensible scientist wonder what lies in store for the first humans who might try to emulate this speed.

This is telling us that Newton's laws of motion - that we all firmly believe in - start falling apart at relatively slow speeds when you compare these speeds to the speed of light.

Instead of quantum theorists saying adamantly that the electron does not spin like a top, perhaps they might see that Euclid, Newton and others have impressed upon our minds that **motion** is a mathematically correct concept. Yet this concept starts falling apart when only .00016 of the seemingly available range of speeds are attained.

If only the quantum theorists had looked further they would have seen what our minds recognize as **motion** is not really here. **Motion** is really a complicated in phase out of phase resonance situation in this all wave universe..

What we see as Euclidean **motion** is not only restricted to our single spacetime realm but to .00016 of our spacetime realm of available speeds.

Quantum theorists may be right and **motion** may not even exist in the microcosm as such. Nevertheless we can use this powerful concept of **motion** to see how this entire universe functions if we realize that it is restricted to perhaps .00016 of **any** single spacetime realm and it also cannot be transferred out of that spacetime realm; only the evidence (angular momentum) of it can.

I am in agreement with the quantum theorists that no **motion** - such as we see here - exists in the quark-electron realm but I also add the caveat that if you say it doesn't exist there then you must also say it does not exist in this **entire** universe per se.

And, believe it or not, there cannot be any such thing as **motion** per se for this **entire** universe because to have **motion** you must have an invariant spacetime interval and this is only possible (today's accuracy) in one single spin/orbit frequency system.

Our concept of Motion

Motion (our concept of it) only exists in subset, spin/orbit frequency realms of this universe and it is

restricted to those subset realms. The constants *c* and c^2 prove this.

But don't throw away this powerful concept of **motion** in the microcosm.

Use Occam's razor and move your mind into **each separate spin/orbit frequency realm at a time.** View it having our concept of **motion.** Even though quantum theorists view it as improper, view the electron as orbiting and spinning like a top (Because of SU (2) symmetry the electron has to spin 720 degrees though to end up in the same spot). But by using *Ampere's Laws* you can see it all as one force and not the 4 fundamental forces that present science views it as.

SORRY

You can't do the math this way though, as Ampere himself found out even though he was one of the math experts of his time.

I'm afraid that math, along with our concept of **motion** is restricted, to **one single spin/orbit frequency system at a time**.

This concept of **motion**, that human minds have developed, is really a remarkable concept. Instead of totally banishing the idea of **motion** from the microcosm, as quantum scientists presently do, I would suggest doing what Uhlenbeck and Goudsmit did and see the micrososm as having its own **type** of **motion** the same as we see **motion** existing in our spacetime realm here.

Once this is done then all the forces become unified with their own different **types** of **motion** as the unifier.

Instead of plus and minus charges it then becomes more **motion** than average or less **motion** than average.

Instead of gravity's attractive force and Einstein's original cosmological constant's repulsive force, this also becomes more **motion** than average for the repulsion and less **motion** than average for the attraction.

Gravity then loses its mono-pole look and, for the better, takes on a bi-polar appearance much like all the other forces.

And some day these future super computers, that Steven Wolfram talks about in his best seller "A New Kind of Science", will even eliminate our concept of **motion** entirely from computation. With satisfactory computers determining all phases of all waves there will be no need for relativity corrections to our concept of **motion**. Our concept of **motion** can be completely done away with just as it is now done completely away with, in the microcosm, by the quantum theorists. These future super computers will see it as space being created more than average via out of phase waves reacting with each other and less than average space being created via waves that are more in phase reacting with one another. **Absolutely no space whatsoever being created between waves that are perfectly in phase.**

And this, by the way, is exactly what is really going on in this all resonance type universe.

Far in the future we will have the super computers that Steven Wolfram talks about. But they are certainly not here yet. So instead of phases use **motion** to see what's really going on. You get a better picture of our universe this way than by using any other present method.

Einstein was right to look for the simple answer because there it is in the above paragraphs.

Dirac was also right because this concept is the very approximation that he foresaw.

Chapter 3

Mach's Principle versus an expanding universe

You can have one or the other but **not both.**

Milo Wolff emphasizes the importance of Mach's principle and I am in complete agreement with Milo on this.

Please note the following **Britannica** 1997 CD **article**

Mach's principle,

in cosmology, hypothesis that the inertial forces experienced by a body in nonuniform motion are determined by the quantity and distribution of matter in the universe. It was so called by Albert Einstein after the 19th-century Austrian physicist and philosopher Ernst Mach. Einstein found the hypothesis helpful in formulating his theory of general relativity--i.e., it was suggestive of a connection between geometry and matter--and attributed the idea to Mach, unaware that the English philosopher George Berkeley had proposed similar views during the 1700s. (Berkeley had argued that all motion, both uniform and nonuniform, was relative to the distant stars.) **Einstein later abandoned the principle** when it was realized that inertia is implicit in the geodesic equation of motion and need not depend on the existence of matter elsewhere in the universe.

It is the opinion of this writer that Einstein's biggest blunder was in listening to LeMaitre and **abandoning Mach's principle** because inertia is **not** implicit in the geodesic equation of motion. Inertia is the result of quarks binding with other distant quarks in the fixed stars and gravity is the result of quarks binding with other closer quarks in nearby objects.

What Einstein correctly saw was that you cannot have **both** Mach's principle **and** an expanding universe.

So he gave up Mach's principle to obtain LeMaitre's expanding universe. It was a bad exchange. It messed Einstein up for the remainder of his life.

Yes, we did have a Big Bang but it was not the LeMaitre - Gamow type scenario. The CMBR or Cosmic Microwave Background Radiation comes not from a tiny expanding explosion but from a **beta decay** in an already gigantic neutron only universe. This **beta decay** scenario arrived because this was once upon a time an all neutron universe for hundreds of billions of years in which Mach's principle also existed just the same as it does today.

The proton is the stablest of the tri-quark entities today but long ago, before the fine structure constant changed to what we now have, the neutron was stable for hundreds of billions of years. But as the fine structure gradually changed then came a massive **beta decay** changing half the now unstable neutrons into protons and electrons via **beta decay**. Inside newly created atoms the other half of the original neutrons were safe and again stable as long as they remained within an atom.

This gigantic **beta decay** left us with the CMBR.

What Saul Perlmutter's group discovered will eventually end enthusiasm for this red shift based expanding universe. Saul Perlmutter, himself, stated that **Einstein's original cosmological constant** truly exists even though Einstein and many others had written it off so they could partake, along with the Catholic priest LeMaitre, in a big religious conversion to an expanding universe.

What no one seemed to realize was that if, via the Principle of Equivalence, gravity cannot be discerned from an accelerating, contraction then gravity's equal and opposite repulsive force, **Einstein's original cosmological constant** cannot be discerned from an **accelerating, expansion**.

And **accelerating**it is because this is what Perlmutter's group found.

But **acceleration** is impossible because while there may have been a **past beta decay** force there to cause some sort of an **expanding** universe, certainly there is **no** present force, which would be needed for such a present **acceleration** to this **expansion**.

Therefore a real **accelerating**, **expanding** universe is **not** here but what is here is this repulsive force equal and opposite to gravity that Einstein predicted, which he called his **original cosmological constant**

And according to the Principle of Equivalence you cannot discern this **cosmological constant** repulsive force from an **accelerating**, **expansion** just the same as you cannot discern the equal and opposite gravitational attractive force from an **accelerating**, **contraction**.

End of story.

Have fun with this and you can tell your friends we are back, once more, to a **steady state universe** which makes sense because Berkeley, Mach, Foucault, Maxwell, Milo Wolff and a host of others have proven there would be no inertia without the surroundings. This **is** Mach's principle.

DPFJr