

GRAVITY MADE SIMPLE

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Reference: www.gravityms.com

The world has long searched for the underlying causes of gravity. It is simple to say that gravity is simply curved space time and leave the interpretation of that to each individual. Gravity extends throughout the universe making it a function of the universe not just simply the force that holds us to the ground. When we attempt to describe gravity we are in essence describing much of what goes on in the universe and any interpretation of what gravity is must include the universe as a whole if we are to truly understand its nature. This article, Gravity Made Simple, is my interpretation, thoughts and ideas about gravity. I try to interpret existing knowledge and place it in a framework which looks at that information from a different perspective. Curved space time can be visualized from different viewpoints and I attempt to show gravity and the universe in that manner.

The universe is like a magic show on a stage. You know that the magician is tricking you but you just do not understand how, even though the magician is performing right before your eyes. So now let us see how the universe has so cleverly been hiding its secrets.

Section 1 Is an attempt to look at gravity from a different perspective, one not as an attraction or a push. It puts time, space and motion into perspective.

Section 2 A look at space in a way you have never looked at it before. It is a look at what else the space time fabric might be doing and how it may be playing a role of which we are unaware.

Section 3 A look at particles, time, and gravity control. Can we build a device to control gravity? To change gravity we must be able to change time. Can this be done? What is a magnetic field and way is matter solid?

Section 4 How does gravity produce motion? Is it a particle or wave? The alternative to the big bang. Was there really one? Can all the things we see in space that leads us to the big bang theory happen without a big bang?

Section 5 Is gravity the same in the microscopic world as it is in the larger universe? Is the strong force and gravity one and the same thing? If so, how could we connect the two? Can string theory explain anti-matter and the expanding universe? This Section will challenge a great deal of known physics and your imagination.

1 Gravity Made Simple

Gravity is one of the simplest things in our lives. It holds the earth, sun and the universe together. Without it we could not exist. We grew up with it. We think little about what it does in our lives until we fall and hurt ourselves, but even then we think little of it. Gravity has been with us from the day we were born so there has been little reason to question what it is. For millions of years little thought was given to why we can stand on the earth and never fall off or to the fact that the moon just stays there leisurely hanging in the sky and not falling. While most people do not think of these things some do. Einstein believed the universe to be simple and rejected theories that did not meet this principle. I agree with him. It is easy to over-complicate the simplest of things. Therefore, I developed this description of gravity along those lines. I hope you will enjoy it.

In my explanation I use the Superstring theory because it fits my idea of how the universe is put together. It also explains the beginning of the universe and some of its internal workings.

I also do not start out with explaining gravity directly because gravity is a product of several physical laws and understanding them is as important as gravity itself. The Big Bang is where it all began so I refer to it throughout this article.

In our universe there are a few basic laws which we must keep in mind at all times. First, the speed of light is a constant in your personal reference frame. Second, the conservation of

energy and mass is paramount. Third, energy is always in motion and fourth, energy can only be changed in form but never eliminated or destroyed.

1.1 Heat

What does heat have to do with gravity? First of all, heat has a great deal to do with a lot of things. We live in an environment where 10 degrees Celsius freezes water and absolute zero is minus 273.18 degrees Celsius. All living things that we know about live in a very small temperature segment of the total temperature range which we believe to be around 10,000,000,000,000,000,000,000,000,000.0 degrees Kelvin to zero or there about. You might say it is the temperature from the Big Bang to absolute zero. A mere hundred degrees out of this temperature range makes us pretty special.

Heat is described to us as a form of radiation, much like light but at a different frequency. This radiation called infrared is absorbed by objects causing them to vibrate. This vibration continues until the heat is re-radiated away from the object. When all heat is removed from an object it will be at the temperature called absolute zero. Now when an object is heated to the temperature of the big bang, the object is torn into electrons, protons and neutrons and then into quarks and strings, (to some people quarks and strings are the same thing.) that is if we consider strings the smallest possible particles. You might ask why heat does this and I can't give you that answer. And no one else can either. But whatever heat is it effects all mass, all particles and all things no matter what state they are in, from black holes to empty space. Heat cannot be locked out and will effect the stability of mass clear down to its smallest level.

If we lower the temperature of an object to absolute zero, the electrons orbiting the nucleus of the atom still continue to orbit the nucleus. The electrons do not stop and fall into the nucleus. Freezing only takes a form of energy away from an object; it does not stop its motion. Therefore, no matter what we do to the atom it still has a fixed energy level and heating only adds to that level. This all really means that the basic energy of the atom is never lost. You might say that the atom at absolute zero is in a flat space, a space with no curvature or distortions, so the atom behaves without bothering its neighbors. You might conclude that when heat is added to a particle the particle reacts by distorting the space the particle occupies causing it to move erratically.

The exact mechanism is not important here; it is the fact that if you add heat energy to any particle in free space it will pull itself around in different directions causing it to wobble. What is important is that the heat is causing the imbalance.

If you were to bottle up heat in a perfectly insulated container the heat would remain there forever. Here the energy in the string becomes important because this basic energy is constant and has a sphere of influence well beyond the string itself and once heat is added to it, it will remain with the string indefinitely. One of the spheres of influence (caused by the presence of mass) is the space distortion or gravity which extends out into the universe. When these spheres are put under pressure from other strings they fight back with a repulsive force. In a way the same thing happens when atoms are pushed together. The result is heat but what we call heat might really be something else. These are forces built into our basic structure.

1.2 Fabric

Most all theory of gravity employs the notions of warped or curved space and time which generally could be called the fabric of space. This implies that indeed there is such a fabric. In other words, in the space we are in, something exists. Either it was there before the Big Bang or it was created at the Big Bang. I believe in the former. So how did the energy get into this fabric of space to form our universe in the first place? It is believed that a ten dimensional space, which must have had a great deal of energy holding it together, broke apart releasing tremendous amounts of energy thus creating strings or causing existing strings to vibrate, creating mass and forming our universe.

Whatever the case may be, the energy manifested itself all at once and as far as we are concerned instantly. If it had manifested itself in our universe at the speed of light or slower, it would simply have dissipated not forming mass. When the energy was released into our universe, it found that there was nothing holding it back. It would be like instantly removing gravity from a black hole. All hell would break loose.

We know that a stick of dynamite contains pent-up energy. But as we hold it in our hand, we have nothing more than a piece of wrapped up cold material. All of its energy is held in check by other forces. We do not see the other forces but we know they are there because the dynamite does not explode or cause any harm. We also know that if we trigger the dynamite it will explode. Is space or the fabric made up of such a material that when triggered it will release vast amounts of energy, but in its basic form it is virtually harmless and the forces holding it in check are undetectable?

This makes us the product of the energy which was released into our universe, not the substance of the fabric of space where it might have come from. In my explanation you will see that gravity is a product of energy (mass), motion and time and not a separate entity by itself. You will see how this comes about as you read on.

We do know that once the energy was released into our universe its sole desire was to fill space. Why we do not know. We do not know if strings were formed by the energy released into our universe or if the strings were already in the fabric and just absorbed the energy much like adding heat to an object. It is believed the string itself has not mass and when energy is put into the string it vibrates and this vibration carries with it a number of properties and these properties started to manifest themselves as the expansion and cooling of the Big Bang took place causing the formation of mass, atoms and molecules. As mass formed it interacted with the fabric causing it to distort or change density. This coupling by the energy to the fabric was met with a resistance. Any force that causes an action in another force meets a resistance and uses energy while doing so.

A chain of events took place when mass was formed. Mass was brought about by the vibration of the string's which distorted space. The distortion itself moved outward at the speed of light leaving the mass behind. From then on mass formed particles, atoms, and molecules from the other forces which came about. This you could call a separate chain of events from gravity. It was the mass energy itself that curved space causing gravity, not what the mass formed afterward.

There are some things at this point which seem to stand out. One is that all the energy of the universe was created at this time, and to us that is a lot of energy. Another is that once energy was created it can never be destroyed; you can only change its form, not its substance. This is something you have to remember because it governs everything that happens in our universe. Nothing could move, nothing could exist, no star could form, no planet could be created, no life could exist. The conservation of energy is paramount to our existence. It dictates why gravity itself exists. Whatever strings are they harbor energy. They are the carriers of energy, and this energy is forever as far as we're concerned, but it might not be forever as far as matter is concerned.

You could say that the energy inside the strings is separate from the string, like heat is separate from the atom. But in this case the basic string's energy cannot be easily removed like heat to an atom's energy can be added and taken away. But this energy in the string can easily get transferred from one string to another when work is done or mass is put into motion. It is this energy in the string that maintains the substance we call mass. Motion is caused by added energy or changing time and is not the basic energy that keeps the string vibrating.

There is another fact that we really think little about and that is that every bit of energy created by the Big Bang is still in the universe. No matter what events took place after the Big Bang the energy released never left the universe. It just was converted to other forms leaving all the energy still with us. Nothing leaves the universe. When matter and antimatter come together they release energy but the energy is not destroyed.

Our universe is an expanding bubble of energy into some unknown space. We are a bubble

30 to 40 billion light years in diameter. No radiation or gravity exceeds the bubble's edge. Also this edge is not the present location of the main body of mass where our galaxies and stars are located. Remember, we are moving slowly away from the center of the Big Bang compared to the speed of light which radiation and gravity travel at.

1.3 Time

Time is a very elusive thing. It sounds so simple. Just look at a clock, a simple device to be sure. But what is time?

Time is a part of all life and a phenomenon taken for granted by all living things. Everything is judged and determined by its passage. It is used to calculate just about everything that happens in our life. It was thought of as a strict constant which never varied until Einstein determined that it was not a constant at all but a variable. It is now considered the fourth dimension and there are many questions about time and many illusions presented by time. It was determined that time varies whenever one is in motion or in a gravitational field, but is there something else that could vary time? See Section 2. Basically these are the only two known things that change the durations of time. You might ask why do these two things affect time. Is there a connection between the two? But what could possibly connect motion and gravity?

Time to us, living things, is a series of events measured by our brains in small increments much like a movie film is made up of a series of picture segments that are flashed on a screen in rapid succession. These segments produce the effect of time and motion.

When we go to sleep at night we have no conscious measurement of time. We could have slept only a few minutes or many years and we would not know how much time had passed until we woke up. Time had stopped as far as our conscious mind was concerned. Time is also an arbitrary thing. What we consider a minute, hour or year has meaning only to those of us who live on this planet. To someone on another planet their year would be whatever they determined it to be. Our clocks and time standards are based on a number we have picked and nothing more. We decided that a year was the time taken for the planet Earth to go around the sun once. We decided that the day was the time it takes Earth to rotate once on its axis. We decided that the hour was one 24th of the day and the minute was one 60th of an hour. These increments are wholly based on our own desire to describe time and build a standard with which we need to describe events and record history. The number we ascribe to the speed of light only has meaning to us on this planet and only to each individual's personal reference frame.

Time is relative in our minds as it is relative in space, but each is different. The time clock in our minds is based on the action and interplay of the atoms and molecules that make up our brain. This action is also determined by motion and the density of the fabric and by gravity. Somehow gravity and motion change the inside workings of matter and cause matter energy function to run at different rates. It is these rates that we use to measure time. The trouble is we cannot observe these changes. No matter what velocity we are at or what gravitational fields we are in, we would not know that time had changed.

Time to matter is a different thing. Matter has its own clock and matter could care less if we are around or not. It simply goes about its business without a care in the world. If you took a rock and left it on the ground it would still be a rock one million years from now and it would not know the difference nor would it care. Take the same rock and accelerate it to the speed of light and it would still be a rock and would not care if a billion years went by or not. The rock is wholly oblivious to anything we do to it. Why? Because it has no memory. It takes something with a memory to perceive time and that's where living things are different.

At the speed of light time stops, that is time as we know it, but obviously time for the object that is traveling at or near the speed of light does not stop. Time also stops at the event horizon of a black hole due to the immense gravitational field density at that point in space. Does all this sound confusing? Well, it should, because time is confusing. It just does not seem that way until you really look at it.

1.4 Clocks and Time

To help describe time let us use a clock, the same thing you hang on the wall to tell time by. Does a clock know when it is at some velocity or in a gravitational field? The answer is no, but under these conditions it slows down anyway. When we accelerate a clock how does it know to slow down? You could say that it felt the acceleration. Is that what slowed the clock down? No, because when the clock stops accelerating it still will run slow compared to those that were not accelerated. But the real question is how does the clock know that it is traveling at all? And does it know the difference between velocity and a gravitational field for it slows down in both.

It is explained to us that it makes no difference which direction the clock is sent away from us. It will always slow down. This is relativity at its best. But this cannot be true if you could follow the clock. If I send a clock from the earth out into space it speeds up because it left the earth's gravity field, then as I increase its velocity it slows down again. When I bring it back it speeds up to exactly the right speed to match the running speed of all the other clocks on earth. It only has lost time but it knows just how fast to run when it comes home. How did it know how to do this? Did it have some form of memory? No, but it does know its relative speed in the fabric of space.

The clock has to know somehow that if its velocity slows in space in the reverse direction from which it was traveling, its atoms' interaction increases, it loses energy of motion and time speeds up. If it did not know what its motion was in space it could not compensate by slowing down or speeding up and in which direction to do it in. There has to be some constant in space that supplies a reference. If there was not, the clock would not and could not run at the speed of the other clocks on the earth when it was brought back.

If I send a clock out from the earth does it know in which direction it is traveling? We can say that the clock does know what direction it is traveling because all energy travels in a straight line. Once an object is started in one direction it continues in that direction, for to change direction some other energy must be imposed. Now to really mess you up. Direction in space is relative but fixed to us. Send a clock out from the earth and at a right angle to the direction which the earth is traveling, then stop its outward travel so it will match the earth's motions. The clock will have slowed down while going out, then it speeds back up when you stop it. If you check the clock's speed you would find that it is running at the same rate as those on the earth. It would be the same as having two clocks in the same room on the earth, except for the earth's gravity of course. Now let's say you are in a rocket ship and accelerating. You have two clocks, one in each hand. Both clocks are running at the same speed. Now if you drop one of the clocks and then measure both clocks' speed you would find that the one in your hand is running slower than the one falling to the floor. That one would have stopped slowing down and would run at a constant speed. So there is a direction in space which is relative to us. It is the absolute speed in the fabric that determines time. In the fabric any clock that moves at the same speed as the earth, relative to the fabric and in any direction, will run at the same speed as the earth's. Confused? You should be.

Of course this is all relative to you and the object, for we have no way of detecting the fabric of space to use as a reference. Nevertheless matter can and does know how to reference itself when moving through the fabric. I could go on with this time thing forever. What you want to remember is that velocity and gravity changes time by mucking with the way energy behaves in the fabric. You will see later that time has a major role in how gravity comes about.

1.5 Gravity/Velocity

It is known that when you accelerate an object to some velocity it gains energy and when an object is put in a gravitational field it also gains energy. This energy is in the form of motion. After all, a gravitational field is an acceleration, but obviously it is not the same kind of acceleration we are talking about. A gravitational field does not accelerate an object in the same manner as we accelerate something. Well, that is true, but the results are the same. Time

slows in both, and in both energy of motion is gained. The question is why would they both act the same? Also, when we accelerate an object to a high velocity, one close to the speed of light (which is considered a constant), things get flattened in the direction of motion and time slows way down. When the speed of light is reached time stops and you might as well be looking at a vibrating one-dimensional object. How a one-dimensional object can vibrate I do not know.

The flattening of an object is seen by the observer and is not seen by those doing the traveling. These are two different views of the same thing. For instance, if we put the maximum speed, say at 100 miles per hour instead of the speed of light, and you are in a car traveling just under that speed, because matter can never reach or exceed light speed, the car, to someone watching it going down the street, would appear flat in the direction of its motion. But when the car comes to a stop at the corner it would suddenly expand back to its original size and all would be normal. The funny part is, those in the car would not have noticed anything different at all, that is unless they looked outside, but inside the car all would be normal. How can that possibly be? Is it an illusion by the observer or is matter really squeezing itself together and the object being squeezed does not know or feel the effect?

Is a light ray nothing more than some object flattened in its direction of travel forming a one-dimensional object? And if that piece of flat energy was ever to slow down, would it expand to its normal depth, whatever that would be, or would it become a photon? Obviously it would not be a very dense object for light has very little mass. And some believe that light has no mass at all but only energy. (Energy and mass and energy with no mass are things I will discuss later in Section 2.) Here we have a classic example of energy being changed from one form to another, the media of transfer being the ray of light. Light could be more than what we think it is.

Why does an object in a gravitational field get accelerated and time slows down? Why does it act like an acceleration that goes nowhere? Gravity is a force created by the presence of mass. No mass ... no gravity. It all comes back to the presence of mass energy. Large amounts of energy make up matter; large amounts of matter make up our universe. Every piece of mass, no matter how small, distorts space, even down to the smallest piece of mass. But it takes a lot of strings to distort space for us to observe it as gravity, but what the devil is the presence of mass energy doing to distort space? Or for that matter, what is space in the first place to be distorted by the presence of mass energy? And why does distorted space change time as we know it?

1.6 Fabric and Density

This all comes down to two things: Amass@ and the fabric of space. Let's look at an old idea, one that has been disproved but is in a way coming back, just in a different form. That is the dreaded word ether, thought to be the thing that permits light to travel through empty space. This was disproved by many experiments, but since then we have learned that the experiments that were performed could not work because of the characteristic of space/time being relative. Now instead of ether it is called the fabric of space or space/time, but if you think about it, it really means that there is something out there, but we just do not understand what. And that light does need something to propagate through. I am going to call what light travels through A The Free Strings in the fabric,@ strings which are not vibrating but are part of the structure of the fabric. When strings absorb energy they vibrate and effect the fabric which forms mass and creates the space distortion we call gravity. You will see what this means later.

Now let's get real. For clocks to change their time when accelerated and return to their original running speed when brought back, there must be a constant somewhere that governs that action. There must be a set of laws that all energy follows to make these things happen. Everything is governed by something that sets the parameters that all mass and energy follow. If there was not such a thing the universe would fall apart. I said before there are two constants we are aware of. One is the speed of light and the other is the conservation of energy and mass. How do these constants affect time?

Let's start with the string. There are two forms: an open string and a closed string. The closed string is said to cause gravity. Now what is a string? In the current theory A The Superstrings Theory@ a string is a very small vibrating thing. It is said to be a vibrating body smaller than Plank's constant, an object 10⁻³³ cm small. It is said that vibrating strings produce mass which produces gravity.

Strings are what one thinks they are, a vibrating piece of string much like a violin string. It is the vibration in the string that contains the energy we call mass. Also, this energy can never be lost. It is in motion forever, to us that is. If strings are vibrating objects and they are vibrating at the speed of light, then the vibration must be propagating down or around the string at the speed of light. The string is said to be the smallest object we can observe. The string is also under tremendous tension in order for it to vibrate as it does. Would you believe something like 10 to the 38 tons of tension? This means it can hold a lot of energy. So what is the string made of and what forces keep it under this tension? That is a question with no answer. But the string size is believed to be the smallest possible thing we can ever detect. The string can only vibrate in certain patterns called Calabi-Yau shapes. Very little, if nothing, is known about the fields that may extend out from the string and how they inter-react with other string fields or the fabric. It is believed that the string surrounds itself with an atmosphere of virtual particles or spacial distortion far beyond the actual string itself. This means that the vibrations in the string are having a pronounced effect on the fabric which then produces the other forces we are aware of.

I have proposed a non-vibrating string which cannot be observed because we are an energy universe or you might say we are the vibration of the string not the string. More on that later.

Does the fabric have something to do with the string vibration? Yes. When a string is in flat space and not accelerating or in motion through the fabric, the string's frequency of the vibration is uniform throughout the string. But when in curved space or under acceleration or motion within the fabric, the frequency of vibration cannot be uniform because of the fabric's interference. Common sense . You must remember that the fabric has a response time which is constrained to the speed of light.

When a string is in curved space or in motion, time at one side of the string is slower than at the other. This means that energy at one end of the string is greater than the other. Curved space and acceleration would demand that.

What happens to time at the center of the earth? Space at the center of the earth is uniform but concentrated, or you could say the fabric there has a uniform density that is greater than its surrounding space. You may float around as if you were in a space ship but time will still run slower at the center of the earth. The same is true after an object's acceleration has stopped.

At this point everything sounded good until I gave it some more thought and came up with a major contradiction. Here's what I mean. The string makes up mass and its internal vibration is moving at the speed of light. If the speed of light is the maximum, how can you move mass at all if it is internally already moving at the speed of light'

Let's review a little of what I have said or implied. Energy came into the universe and either formed strings or energized them. The string's energy vibration distorts space. The string is vibrating internally at the speed of light and this vibration is uniform across the string when the string is in a flat space and not in motion through the fabric. Non-vibrating strings fill space and it is these strings that can transfer other energies at the speed of light. It is the closed loop strings which make up mass which distorts the fabric which gives rise to a gravity field we can detect. Got all that'

Now here is the catch. If you put matter into motion you have a fundamental conflict within the string itself because internally the string is already vibrating and the vibration is propagating down the string or around the loop string at the speed of light. This would break the law stating that the speed of light is maximum. You can not accelerate an object to any velocity faster than that of light and since the energy in the string is already internally propagating at the speed of light you would break that law. Here you can see something must give; there is one thing that must happen. The propagation of the wave in the string must slow down.

Also, while the energy in the string is in motion within the fabric the wave propagation in the string becomes non-linear. Time at one side of the string is slower than the other due to the higher density of the fabric in the direction of travel. The propagation of the vibration is no longer that of the speed of light but is less by the amount of the new velocity of the string's motion. When this happens the frequency of the wave increases because the length of the string appears longer due to the delaying effect of the fabric's higher density in the direction of travel brought about by the space distortion's speed of light limitation.

The string's frequency increases because the distance to time parameters in the fabric has changed. The string's frequency will increase in discreet jumps because the vibration cannot occur in anything less than discreet multiples of the fundamental frequency. To the string the frequency has not changed but it has just added more cycles due to the longer travel time. This also means that an acceleration is not smooth but accrues in discreet steps. This really gets confusing so look at it in this way. When a light ray travels through a glass pane the light slows down. There is a delay from one side of the glass to the other. Outside the glass the light's frequency is lower. Inside the glass the light's frequency is higher and its energy appears higher. The apparent energy increase compensates for the slower propagation in the glass, or in other words, it is in the glass for a longer period of time. In effect you have concentrated its energy and slowed its time. When the light comes out its frequency decreases and the extra energy is put back into the propagation rate. The conservation of energy is maintained by the change of time with velocity.

It is a well-known fact that when there is an increase in frequency you have an increase of energy, but in this case time changes and the total energy inside and outside the pane of glass is the same. Confused?

Now this gets more confusing. If you accelerate an object to one half the speed of light the string does not shorten by half and time does not slow down by half but the frequency of the vibration doubles increasing the string's energy due to the propagation time being twice as long over almost the same distance. The string still thinks it is vibrating at the same frequency relative to itself but in fact it has doubled as far as the fabric is concerned. Thus the energy is kept in a storage situation like the energy in the glass is held there by the glass's delay properties.

The resistance to the acceleration is caused by the change of the string's propagation length forcing more cycles per that length thus increasing the string's energy. It is in the frequency change and time change that the energy of motion is stored and the resistance to the acceleration is what increases or decreases that frequency. Since the speed of light is constant, the propagating wave in the string must slow down or speed up to keep that law in place and preserve the law of conservation of energy and mass. The string in effect is storing the acceleration energy. To the string though, the speed of light is not violated because it sees its velocity and the vibration velocity as one that equals the speed of light. This whole operation preserves the laws of nature.

What happens to the vibration of the string when the object is traveling near the speed of light? Its frequency must have increased to some ugly number (note: The frequency is the same but the number of cycles per the given time, our time, has increased. Thus the object viewing itself sees no change and the substance it is made of does not change.), its energy has gone through the roof and it has now shortened to nothing in the direction of travel. Of course it did not really shorten to nothing. If it did you would see nothing. Remember we only see what the energy in the string is doing, not what the string or the fabric is up to. Also, the string is still vibrating at the speed of light (the string's internal vibrating propagation speed plus the object's velocity) but it is confined to a very short area and the energy of the mass becomes $C \times C$ or C^2 .

Why does the time slow and the string shorten with velocity? Time, shortening and energy gain all come about at the same time. They are not a linear function with velocity but follow a log curve. Time, shortening and energy start out very slowly as you increase velocity and peak at the speed of light. This can only be caused by the ability of the fabric to respond. The fabric also has a light speed limit. So as the energy increases in the string due to velocity, the fabric's reactance increases. It is the rate of energy interchange between the fabric and the object that

we experience as time.

To me gravity is a variation in the density of space. A uniform density in the fabric does not produce gravity. However the density itself does change time. The variation of space density is generally called curved space or space/time.

1.7 Gravity

Are you still wondering if I am going to tell you what gravity is? Well it's coming up, but gravity, velocity, time and curved space are all tied together. They are the products of what the fabric of space is doing to the energy that is running around in it.

But first let's look at how gravity is explained by those who use the force particle to explain it. The particle is called a graviton; it is said to have no mass but carries the force of gravity. The graviton is supposed to carry the force of gravity from one atom to the other and back. First a graviton is sent out from an atom. The graviton goes to another atom and tells it that there is another atom close by and it must be attracted to it. This other atom sends back a graviton telling the first that, yes I agree you are there and I will push myself toward you a little, but you will have to push yourself toward me a little. Partials telling other partials what to do are a total mystery to me without the use of fields.

So how does the graviton know what to tell the other atom and what generates the gravitons in the first place and does it know how much it needs to be pushed in its direction? Do gravitons have some form of memory? Now once the atom receives this information from the graviton, what is it going to push against in the first place to create the desired attraction? Maybe one could figure this out but not me.

Now think about this. Every atom in the earth has to send out gravitons to every other atom in the earth to keep the earth together, therefore each and every atom in the earth is communicating with each other. That's a lot of gravitons running around. But that's not all. Every atom in the earth is also sending out a graviton to every atom in the sun and every atom in the sun is sending a graviton to the earth to keep it in orbit around the sun. Then there is the moon and then the galaxy and clear out into the entire universe. It also says that each and every graviton has to know where to go, they just can't go out at random. They also have to know how far they have traveled to get there in order to tell the other atoms how much force to attract each other with and this has to happen to every atom or some might not get the message letting some atoms go off into space. Now to transfer energy from one place to another you must create a force, the graviton, by some means. This takes energy even if you convert it into a particle with no mass. This means that atoms would slowly evaporate over time because they are continuously sending out gravitons. We do not see that.

Well, you get the point why I have misgivings about force particles, though I really believe they have their place in math to explain exchanges of energy in matter.

This particle explanation bothers me so much that I could not accept it so I am giving you my own explanation. Why? Well, I thought about gravity for so long I just had to write down my ideas.

The effect of gravity is felt throughout the entire universe, mainly because gravity originated when mass was created in the Big Bang. Mass distorts the fabric of space causing gravity that slows down time. With mass you get an increase of energy. All this keeps your feet planted on the ground. Gravity also acts like an acceleration but you do not feel the acceleration.

An example of this is a person in an accelerating rocket ship that has no windows. If the ship is accelerating at 1g, being the same force that holds us down on earth, the person could walk around in the ship just like on the earth. They could drop things which would fall. The person in the ship could not tell if they were on the earth or not. If the ship were to stop its acceleration the person would soon realize he was either falling or not be on the earth at all.

In this case the ship is overtaking all the objects in it, giving the elusion of gravity. All this happens because mass has a resistance to accelerating motion. When the ship is accelerating it is in the process of constantly increasing its speed. If you were to drop an object in the ship the

object would stop increasing its speed and the ship would overtake it until it hit the floor. To you the object would look like it fell to the floor.

From our discussion of velocity one gets the idea that gravity and velocity could be one and the same thing. You get all the effects of gravity when you accelerate an object. Time slows down and you are held to the floor of your ship and all objects fall at the same rate. Without looking out of your ship you could not tell the difference. In fact you could run all the tests and experiments in your ship on gravity and get the same results that you would get doing them on the earth. But in this case your ship would run out of steam as you approached the speed of light, but gravity goes on forever having no limits on how long you will be held down to the ground. Why?

Gravity is a very weak force but it permeates throughout the entire universe. It is believed that gravity can be pulled around by large massive bodies. The earth is said to drag gravity around with it as it rotates in space. The effect is much more pronounced when viewing a rotating black hole. Curved space causes gravity and curved space is a density distortion in the fabric of space. This means that a massive body can manipulate the fabric of space. This gives the fabric of space a substance, something that can be changed, something real.

At the beginning of time or the Big Bang, a tremendous amount of energy was thrust into our space. It entered our universe in an area as small as a proton. That is a lot of energy in a small area. It would well exceed the energy necessary to create a black hole or a worm hole, yet it exploded anyway. Why did it still explode? That becomes clear when one gives it some thought.

Gravity did not materialize to us until mass was formed a very short time into the Big Bang. When the mass was formed it started to curve the fabric of space around it but that cannot happen faster than the speed of light. The gravity that we have today did not exist at that moment of creation. The tremendous curvature that dominates the universe today was created over time and its creation took place at the speed of light. So the curving of space is not an instantaneous thing. Therefore as the curvature of space was forming it had a tremendous amount of mass and energy right behind it and could not hold the explosion in check.

To visualize this effect of an expanding curved fabric of space let us use an old and well-worn example: the rubber sheet.

Let's make the rubber sheet huge, like thousands of miles across, and stretch it so it has the characteristics of the fabric of space. It would be a very thin sheet but very strong and could stretch without breaking. And let's say that any disturbance in the sheet can only propagate across the sheet at the speed of sound.

Now that we have all this stuff put together let's run an experiment. I am going to fire a heavy bullet into the sheet and watch what happens. The bullet represents the Big Bang where energy is introduced into our space fabric. The bullet, when it hits the sheet, is traveling very fast, in fact let's say at the speed of sound. The bullet forces itself into the sheet creating a large deep depression. As soon as the bullet meets the sheet it encounters resistance from the sheet and starts to slow down and lose energy until it comes to a stop somewhere deep inside the sheet.

Now let's stop time and look at that picture. The bullet has created a very deep hole in the sheet which represents its total energy and mass. But it happened so fast that the sheet did not have time to respond, since the sheet cannot react faster than the speed of sound. This leaves the rest of the sheet unaware of the presence of the depression. Let's start time again. At the point at which the bullet entered the sheet we find a hole not much bigger than the bullet itself but now the hole starts expanding at the speed of sound causing a depression which travels outward in all directions. In other words, the sheet is taking up the strain caused by the bullet and distributing it throughout the sheet.

At some time the sheet's resistance will equal the strain put on it by the bullet and the outward expansion of the depression will come to a halt. The distance outward from the entry of the bullet to where the expansion stops depends up on the energy the bullet had and the characteristics of the sheet's resistance. Since the sheet has very little resistance the distance is

exceedingly great.

If you believe I am going to say that the fabric of space acts like this rubber sheet you would be right. Here most people will throw this explanation out the window, but read on. When energy was introduced into our universe it caused the fabric to distort. The action of curving space takes energy which means that there is a resistance to that action. It is not much, but it is there. The fabric of space was being distorted and was taking up the strain put on it by the Big Bang.

There have been many discussions about the universe being an open one or a closed one. An open universe means that the universe will expand forever and turn cold. A closed universe means that it will expand to some point at which gravity will take hold and bring it all back to a hot ending or another Big Bang. Here I have chosen the closed universe because I believe that the fabric of space will at some point take up the strain caused by the energy put into it at the time of the Big Bang and stop the expansion. Of course we will not see this because it is happening at the edge of our universe. Simply speaking, the more energy brought into the universe the larger the overall universe and hence a balancing act of forces. (More energy brings about a larger gravitational expansion thus not permitting the energy in the universe to escape: less energy, less expansion.)

I mentioned free strings? It takes a great deal of energy to vibrate a string and the frequency of vibration is high but what happens to the lower frequency energy? I believe the free strings carry this energy. They also carry the force of electromagnetic radiation, magnetism, and other things like virtual particles and particles with no mass. Remember, if strings gain enough energy they will turn into particles with mass and these particles will be real and live on until something destroys them. Virtual particles come into existence from nowhere and then vanish. This is what happens when energy peaks within the free strings.

Now you do know that we are not at the edge of our universe. In fact far from it because the expansion of mass in the universe is far slower than the gravity or radiation wave which moved out from the Big Bang at the speed of light. We are much closer to where the Big Bang started than you think. It's also quite possible that the expansion of the universe has already stopped. This of course could be determined if one knew the characteristics of the fabric of space and the amount of energy that came into the universe.

Up to this point I have tried to connect a lot of things together, but what do they have to do with gravity? Well, as you can see I hinge a lot of things against the fabric of space. Time and energy vary when you move through space. But we do not move through gravity and we do not feel an acceleration in free fall so why does time and energy vary just because we are standing on the earth? Remember we also do not feel motion no matter how fast we are moving.

Let's go back a little. We feel an acceleration when we are accelerated because something is pushing us from the outside causing all the atoms in our body to push against each other while resisting this motion. They do so because they are individually separate and each resists the acceleration. This is true clear down to the string itself. This type of acceleration our body can detect and tells us what is going on. When standing on the earth we can feel this acceleration because the earth is stopping us. But what would happen if every atom (or every string) in our body was accelerated at the same time and rate? Like in free fall. It would appear to us that we were in a uniform space field because we could not tell that we were being accelerated, until we hit the ground, that is. We would be floating as if in free space. This happens to all particles at the same time in free fall, hence we feel no acceleration but in fact we are being accelerated.

Now what is gravity? The density of the fabric of space is distorted forming a gravitational field. Strings make up mass and a string is vibrating at the speed of light and the vibration is propagating in the string at the speed of light. This propagation is uniform in flat space but is not uniform in curved space. This is the key. In curved space the balance of energy across the string is not equal. Time at one side of the string is slower than time at the other side causing a difference in frequency from one side of the string to the other, thus there is a difference in energy from one side to the other. To maintain the conservation of energy the string tries to migrate or increase its motion in one direction to balance out the non-uniformity of the string's

energy and to create equal time across the string.

Here the time difference in the string caused by the gravitational field is traded for motion. When you are in free fall in a gravitational field time across the string is equal because it is compensated for by motion in order to maintain a uniform string. When you hit the ground motion is stopped and time across the string becomes unequal because its space is now non-uniform. This difference, or this thing that holds you down to the ground, is the motion the string needs to balance out the difference in time. This is all due to the conservation of energy.

And that is what gravity is.

The effect is no more than how a balloon filled with helium goes to the ceiling when you let it go. The balloon is attempting to compensate for the difference of pressure between the bottom and top of itself thereby making it rise. If a million balloons were let go at the same time they would all rise at the same rate not bothering each other, so they could not tell if they were rising or not but when they hit the ceiling creating a force against each other they then would feel the effect like we do gravity when standing on the earth. These balloons will stay there forever if they had their way just as we will stay on the ground forever.

I can guess that your next thought is that a string is too small to have a time difference across it to cause that kind of motion. This made me think too. Then I realized that the string which makes up mass carries with it a distortion field that extends far beyond the string size, just like the earth's gravitational field extends way beyond the earth's diameter. These fields come into play and may even be the defining property that causes the motion that holds us down to the earth. By controlling the extended distortions caused by an object you can control the object's motion.

Why does mass shorten at high velocities and in a gravitational field? Shorting is a mystery to most people and I understand why. What in heck is going on in an object to cause it to shorten or flatten in the first place and how was that effect discovered? I do not know if the flattening effect has been proven but it is a logical outcome of my description of the fabric. We are a wave function moving within a substance (the fabric) therefore are subject to the laws which guide these functions. When energy (us) travels at high velocity time slows and mass increases and the propagation of energy within us slows by the speed of light minus our velocity. This effect shows up as a delay of the object in the fabric. To show this more clearly let's look at our pane of glass, but in this case let's make the pane very thick. In fact, let's do better than that. Let's use a crystal at absolute zero. This crystal has the effect of delaying a pulse of light, let's say for five seconds in a five-inch crystal. Now let us direct a pulse of light at the crystal which is one second in duration, or 286,000 miles long. Now when the pulse enters the crystal its propagation is slowed so that the entire pulse is now only taking up one inch of the crystal. Here we have shrunk a 286,000 mile long light pulse to one inch and it will take four more seconds for the light pulse to come out of the crystal where it will once again return back to its 286,000 mile length.

When we increase our velocity in the fabric the fabric appears to us as getting denser. The faster we go the denser the fabric, thus a longer delay and the shorter we appear. The shortening is real to the observer as is the pulse of light in the crystal but because of time changes it is not observed by the object or the person doing the traveling. Remember we are a wave of energy traveling within the fabric. The faster we travel in the fabric the greater the reactance, the longer the delay, and the shorter we become. This is all due to the fact that the spacial distortion in front of the object is condensing because of the fixed rate of its travel such as the glass getting thicker the faster you go.

Does gravity shorten objects like velocity does? In my explanation it must. But this is not observed because of the elongation caused by the thickness of the objects we observe. It must be observed at the string level.

Einstein is right. The universe is simple so why do we make it so complicated'

1.8 Sound

Up to this point I have described time, velocity, energy and gravity, and what they have in common. I said that the fabric of space is the main source of their commonality but can we visualize how we could exist in such a scenario? How can this fabric of space be there and we not know of it? Yet we are free to travel through it untethered. To understand this better I have made up a little story.

This story is about a sound universe. Let us take a three-dimensional block of material. This material is like the rubber sheet talked about earlier. It is flexible; it can be stretched and pulled and deformed. The block is big, extending for billions of sound years in all directions. Since this block is only a little part of some other structure it is uniform in the area which we are talking about and the structure of the sheet is very small compared to that of a sound wavelength.

One sound day a cosmic particle, while passing through the block, hits part of the block's structure and explodes releasing a tremendous amount of sound energy. There was so much energy that the structure of rubber could not absorb it all. A great deal of sound energy called sound waves spread out at the speed of sound. But a great deal of sound energy, because of its high intensity, wound up trapped by the fabric and curled up making sound mass. This sound mass distorted the fabric of the block causing other sound masses to come together forming larger sound particles. These sound particles caused more distortion causing larger sound atoms. Eventually enough sound masses formed creating sound planets, and in some cases sound masses formed sound stars which emitted sound light. Time passed leaving the sound universe to roam throughout the fabric of sound space. Millions of sound years later sound life sprung up on one of the sound planets. Millions of sound years after that sound life became intelligent and decided it wanted to travel to the distant sound stars. But their scientists had discovered that the speed of sound was the fastest speed at which their rocket ships could travel and they did not know why. Being made of sound they could not see the fabric that permitted them to exist and all the sound energy they put into their practical accelerators was not enough to understand their fabric of space.

Later, reason prevailed and one of the scientists realized that if you were made up of condensed sound you could not travel faster than sound so this scientist, being a maverick, set out to perform an experiment. He thought that if he could push himself against the fabric of sound he could use it in space travel. In his garage he made a device that could connect him directly to the sound fabric. Well, this scientist was lucky; he lived through the event. He also discovered that unless you change what you are made up of, sound is as fast as you can go.

In this little story you may see what I mean. Sound people in an object cannot observe the object. Sound is energy in the object, not the object itself. The object is just a medium for the sound energy to travel through, nothing more. The key here is energy that may have nothing to do with what it is traveling through or harbored within. Light and matter is nothing more than energy being conveyed around in the fabric of space making the speed of light maximum.

Now that I have described gravity not as an attraction or push but a migration of mass toward a place in space where time is slower. I am going to really mess up your mind. Mass is a the denser area in the fabric. It is not a hole or well. The fabric is actually containing the energy. The energy (appears) as a tremendous pressure point trying to escape. It is pushing against the fabric forcing the fabric to take up the strain creating a pressure gradient away from that energy point. The pressure shows up to us as a slower time area in space. This is what we see as curved space. Unlike the rubber sheet which stretches and pulls the fabric to form a gravity field, the reverse is true. It appears that the fabric can only hold back energy that is compacted down to a certain size and frequency of vibration but when that frequency reaches some lower point the fabric can no longer retain it. It then rushes out into our universe as radiation, or you might say it explodes. (Pressure is a good way to visualize mass distorting the fabric.)

Wine is motion and gravity similar? When we increase the velocity of an object in the fabric we create a denser area of space in front of the object and less of one in the back. Since the gravity distortion waves travel at the speed of light, the distance from the end of the distortion

wave preceding an object to the object is shorter than the wave behind the object. In other words, an object traveling through the fabric is not in the middle of the gravity density field which surrounds it. The gravity field in front of the object is denser and time runs slower. Near the speed of light there is very little distance from the object to the end of the gravity field, because the gravity wave velocity is fixed and the object's speed is not. This creates a very dense area in space where time runs slower and the object shortens because of the delaying effect. The object sees this distortion just like it sees a gravity field where either time or motion must change to preserve the conservation of energy.

Every object carries with it a distortion field. As you walk down the street this field follows you. It reaches out from your body at the speed of light. One second from you it is 286,000 miles away and still moving. If you could add up all the area your field is distorting you could determine how much mass your body had. You can believe this are not but the entire earth is actually responding to your motion. Can we really detect a gravitational distortion or wave? A thought for another time (Section 2).

Let's cover one more point. The conservation of energy. This is really the real reason why gravity exists at all and it is why all events are subject to the laws of nature. It also says that there is an anti-particle for every particle. Space must be totally balanced in energy. So how did I come to this? Let's look at it this way. Let's make space perfectly uniform. Make this a fixed law. Space can not be anything but uniform, period. No exception. But obviously that can't be because space is curved and distorted and energy is running all over space causing havoc.

Space though has an out. If you change me (space) by adding energy to me I will change you (energy) by changing your time or motion. Thus I will keep all thing in balance. By doing this, space is always kept uniform. At least it thinks it is uniform. This effect on energy and mass in space is what governs all things including gravity. Objects moving in space think they are traveling in a straight line, always and in a uniform space. Just because we see things curving in gravity is relative.

1.9 Conclusions

I have tried to explain what gravity is and how it works. Mixed in with that is time, motion, energy, momentum, space and the fabric of space.

Can we use the fabric to push against? To drive a ship in space? Maybe. This could be possible but one must be careful when dealing with the fabric, because like the sound scientist found out . . . Oh, I forget to tell you what happened, didn't I? Well, he found out the hard way.

The fabric could be considered a fixed object and we are moving in this fixed object, like sound waves in a solid object. In our case everything in our body is vibrating and propagating at the speed of light less that speed at which we are moving in space. Now if I were to make a device that could connect to the fabric directly, what would happen? First, the earth is moving through space at some speed, let's say at 600 miles per second. This means our device is moving through the fabric at the same speed. Now connect your device to the fabric and watch out. First of all, the device will come to a dead stop in space and you will travel on at 600 miles per second. It would be like running your device into a brick wall at that speed. Just hope you are not close when it does so.

This of course is all conjecture on my part because the fabric may not be the substance I envision it to be. The fabric could very well be like air or water. It could be under the laws of the other six dimensions talked about in the superstring theory, but it still dominates us.

I have expressed that energy is a separate entity in our universe. It may be trapped here but it is separate.

1.10 Food for thought

Is it possible that the strings and the fabric of space existed in our universe before they were energized with the introduction of energy, bringing them to life and forming the universe as we know it? This would mean that there is a duality of our existence. How did I come to such a seemingly ridiculous conclusion like this? Is there something in our universe that could be acting in the same manner? YES!

This is hard to explain, but do you really know what we really are? Yes, you would say. I am a person, a flesh and blood living being. So what does that have to do with the duality function of space? Let me explain. First of all, say you have a computer, right? Well, look at it. It is a box full of electronic components, resistors, capacitors, inductors, transistors, and a processor all connected together with wires. You turn it on and it works. Why? Because you energized its circuits with electrical impulses. The impulses run all over the thing guided by the processor and deliver the results to the screen where you read them. So what? Well, let us look at the computer from the point of view of the electrical impulses. Let's say you were the impulses and had no idea what you were doing. You simply follow the path given to you. Your knowledge of why you had to stay in those paths was unknown. You were just energy moving around through space as far as you could tell but since you had some knowledge of space you realized that for some reason you were confined to certain areas. Here you are, just energy, and you have no conception of why you exist at all.

Now let us take another look at your computer through a device that filters out all matter and lets you see only the electrical impulses traveling around inside it. Here you would see that all the work being done by the computer is being done by the impulses within it, a completely separate entity inside your computer. This energy in effect is being introduced from outside and used by your machine. The impulses are the machine; the other stuff is just there to guide them.

Let us look at one more example. Us. We are a flesh and blood living being. We have billions of nerves sending electrical impulses all over our body. We have trillions of neurons in our brain keeping track of all our body functions. We see by converting light to electrical impulses and sending them to our brain. We hear, smell, touch and think the same way. Our conscious mind produces thought by using electrical impulses. If you could strip away all your flesh and only see these impulses you would see a completely separate person inside yourself. You would see the real you, the thing that is acutely producing everything that happens in your body. Your body would be like the fabric of space and the impulses would be the energy that makes it run. No energy, no life. The electrical impulses in your body are you; your flesh and blood just carries you around. You are in essence two beings, just like our universe could be two beings.

The space the universe is in could very well have been complete in every way and it only needed the energy from somewhere to form mass and bring it to life. Energy is something added to things. The things only use it to do work. And yes, I do not know what energy is other than in our universe it is a vibration, but without it nothing happens.

The questions always asked are: Will we ever go faster than light? Will we ever travel to the stars? I believe the answer to these questions is a definite yes. Will we defeat gravity? Yes, and it will be done long before we defeat the speed of light. I have dreamed all my life about gravity and will continue to do so but I just had to get this down on paper.

2 A look at space in a way you have never looked at it before

As I have expressed earlier, space is really more than we think it is. The ability for mass to deform space causing gravity means that there is something present in space to be deformed in the first place. As an example, if there was no air in the room you could not change its pressure or have sound waves pass through the room.

My definition of gravity is the density difference of the uniform gravity density of space at two different places in space. You could call this curved space time. The stuff that is deformed to produce gravity I am calling the UGD. This in effect is saying that uniform gravity is like

a substance. I will use uniform gravity density, or UGD for lack of a better name, for the substance.

But before I get into the meat of all this it will help if I give you some visual aids. I will do this by giving you two examples of how things might act in space if the UGD changes.

My first example is like the pane of glass with laser light pulses traveling through it which I depicted in Section 1. Here I create a magic crystal which can delay a light pulse so that it takes many seconds for that pulse to travel through the crystal.

Let's make this crystal large enough so it takes a 1 second light pulse 30 seconds to pass through the crystal and come out the other side. Now let's fire a laser pulse that is 1 second long or 286,000 miles in length at my crystal. When the crystal receives the pulse it shrinks to a length of 1 inch and travels across the inside of the crystal at a rate of 1 inch per second. If the crystal is 30 inches long the light pulse will take 30 seconds to transverse the crystal and then resume to its normal 286,000 mile length when leaving.

This is what I call a delaying crystal. The light does not care or know the difference in its travel through the crystal. It does not know or realize that it is the density of the crystal that delayed its travel. If a person were riding the pulse when it went through the crystal they would not know that they passed through the crystal, if of course one could do this.

Mass in every sense is like the light pulse but moves much slower, although it is nevertheless a vibrating wave subject to the same restrictions as the light pulse when traveling through the uniform gravity density of space. If there is a denser area in the fabric of space and mass moved through it, it would be delayed just as the light pulse was when traveling through the crystal.

For my second hypothetical example let's build a crystal that has a varying density. This crystal is in the shape of a sphere. I'm going to increase the density of the crystal sphere as we move toward its center and make it look like the gravitational curve when approaching a planet. Let's say the sphere is very large but at its center, let's say a few inches in diameter, the crystal gets very, very dense, approaching that of a neutron star.

Now let's aim a laser pulse of one second duration at the crystal sphere and follow the pulse as it passes through the varying density of the crystal. First, the light pulse will see very little change in its length because the crystal has very little density as the pulse enters the outer area of the sphere. But as it progresses inward it will experience an ever increasing density and start to decrease its length because of the delay of its propagation caused by the crystal's higher density. The one second light pulse which began at a length of 286,000 miles now shortens as it approaches the center portion of the sphere. If the center portion density of the sphere is sufficient the light pulse will shrink to nothing more than a line. If the sphere does not present any resistance to the pulse the pulse will continue on into the sphere's center. Here we will find that the light pulse, even though being nothing but a thin line, will be highly delayed in its travel and, depending on the density of the center of the sphere, will take a very long time to pass through the center but will eventually emerge out the other side and resume its full length once again.

2.1 Reference Frame

In viewing these two hypothetical examples let's consider us as a reference frame. Because we are individuals, each of us has our own personal reference frame. When I observe something I am always using my own personal reference frame. When someone observes me they are using their own personal reference frame which could give them different results when taking measurements and recording events. So in most of this part of the article I will refer to my reference frame or your reference frame because you must separate the two in order to understand each other's observation.

In the two examples given I am using my reference frame to observe the pulse of light traveling through different densities of material. What I'm going to do now is to equate the density of the material which the light passes through to a change in the density of the fabric, or the UGD. But in this scenario mass, being a vibration, not only changes its length but its time and size

as well.

Mass usually is moving slowly but the inter-vibrations of its strings are moving near the speed of light in random directions. Therefore the dealing effect is in all directions causing the mass to shrink in size from my reference frame. This of course is not seen when we pass our light pulse through the crystal, for there we only see the shortening and the delaying properties of the material.

When I am watching the light pulses go through the crystal sphere I am determining its passage by the distance and time clocks of my reference frame for this is the only way I can determine the time it takes the pulse to transverse the sphere. My time and your time are always the same, it is the difference between us that makes our times relative.

2.2 Black Hole

A black hole in space is made by the collapse of a star which has sufficient mass to create a gravitational field so strong that no light or anything else that we know of can escape from it. The event horizon is the outer portion of a black hole where the gravity density is sufficient to prevent light from escaping. It is at this point and inward that very little is known about a black hole. Inside a black hole is mostly a mystery although it is believed that the gravity field continues to increase until something called a singularity is formed. All the properties of the inside of the black hole are determined by mathematics because of course no one can make measurements or observe anything pass the event horizon of the black hole.

When we observe events around a black hole we see some very strange things happening. So let's look at a black hole for a few minutes. Let's take two people, you and me. I'm going to take you and put you in a rocket ship and launch the ship into a black hole while I watch from a distance. It is believed that the ship will travel up to the event horizon of the black hole and then right on through to the center where the ship and you will be crushed. This is the exact view that you and the ship will in fact observe. But I, watching your ship, will not get this view because I will see the ship approach the event horizon, slow down, and freeze in space effectively at the event horizon and your ship will stay there forever as far as I am concerned. This is the view from my reference frame and it is not the view from your reference frame. We both are looking at exactly the same thing but with completely different outlooks.

From your outlook it is this scenario that makes us believe that your ship simply went right straight through the event horizon and was crushed. From your reference frame that is exactly what happens. From my reference frame I know that the light emitted from the ship when entering the event horizon is slowed by the gravitational field surrounding the black hole. Because I know this I can account for the discrepancies in my observation.

Now let's look at this from a different view, one very similar to our crystal sphere mentioned above. Here we will make our crystal large enough so your ship can travel in it just as easily as our light pulse does. Now I'm going to sit outside the crystal and watch your ship pass through the sphere and observe what happens to you and your ship. When entering the outer portion of the sphere your ship will shorten and shrink. Elongation will also occur but that is caused by the severity of the gravitational curve the ship is entering. If the ship was sufficiently small this could be ignored so let's say our ship is no bigger than that of a particle.

As you get closer to the center of the sphere your ship will continue to shrink and due to the delaying effect of the density of the sphere you will also slow your travel (my view). At the heart of the sphere the density will be so great that it could take you years, or millions of years, to cross the sphere's center and emerge out the other side. This all depends on how intense the density of the center of the sphere is. This is what I see from my reference frame. It is what one should experience when passing very close to the dense gravitational field. This is very much the same effect you would get if your ship was traveling near the speed of light, but in doing this your ship will shrink in the direction of travel only. Of course from your point of view you had traveled through the sphere and come out the other side in only, let's say, a few minutes, just to have a number. However in my view you took 1,000 years to cross the crystal. The surprise of

course will be yours because you will return 1,000 years in my future and this all comes about because time slows when mass is traveling through a denser space time or fabric. In other words, your clocks on your ship were all running slow compared to mine.

So what does this do to your ship in my view when it enters the event horizon of the black hole'

In my opinion the ship will shrink in size and slow in motion to a point which will virtually freeze it in space at the event horizon. You, of course, will not observe this because your time has virtually slowed down to nothing, making your trip into the black hole seem no different than it was outside the black hole. Because of the tremendous delay at the event horizon it will take you millions if not billions of years in my reference frame for you to so much as cross the event horizon much less enter the center part of the black hole.

In my view all mass and energy that is sucked into the black hole's event horizon is in fact still in the event horizon slowly but surely moving inwards due to the fact that time at this point in space is almost at zero and the delay is infinite. Here you can see that traveling at the speed of light where time will be zero is virtually the same as far as my reference frame is concerned as sitting in the event horizon of the black hole. In both cases one is closed out of our universe. Here we are trading distance for time, and traveling at the speed of light we are trading time for distance.

So what does this make a black hole? Well, to me it is only a great big energy delay object in space. This of course means that if there is no center or solid substance inside a black hole the energy drawn in will eventually pass through and emerge out the other side and the mass which created the black hole in the first place will emerge and regain the velocity that caused it to shrink and form the hole. One must realize that the velocity or motion of mass is never lost. It can be converted to other motions or to the force we call gravity by relinquishing its time but that energy is never lost. When matter enters a black hole the black hole is pulled toward the matter. It is hard to imagine when you go upstairs in your house the earth is actually moving away from you under your feet. Not much of course, but it is definitely moving. As explained earlier it is the time difference across mass that produces gravity or the acceleration that holds us to the ground. One is always trading time for motion.

But there is another trap here, for when you have zero time you have maximum velocity so the mass that is sucked into the black hole is accelerated to the speed of light and the acceleration is toward the center of the hole but since time is zero the mass appears frozen at the event horizon. This of course makes it virtually impossible for the mass or energy to reemerge. This leaves us with two contradictory terms. One is that the mass thinks it is moving at the speed of light but in reality it would be frozen in space at zero time.

This could give us some idea of how a small black hole could evaporate overtime. There is also conjecture that energy can leave a black hole by the process called tunneling. No one knows how tunneling really works but it is believed that particles can simply transfer themselves from one place to another and do it across boundaries at faster than the speed of light. It is believed that this process takes energy from the black hole to outside the black hole causing the black hole to lose energy and evaporate or go below its critical mass and explode. I will go into tunneling a little later and show you how that process may work and how possibly the speed of light could be breached.

2.3 Gravity Reversed

Let's look at something else, and that is the gravity gradient or change of strength of gravity around a star or planet. Is there a maximum on such a gradient? Let's look at the earth for an example. If we could drill a large hole completely through the earth and be able to enter it, what would we experience'

First of all, if we went to the earth's center we would find that we would float around at the center just as we would float around in a space craft which is circling the earth. There is no gravity at the center of the earth. There is a UGD but we cannot detect uniformly dense

space time. Gravity is the difference in density between two points of space. No matter what the uniform density of space is, it has no gravity. Gravity itself is the only thing that presents us with a clue that the UGD is present.

If we are at the center of the earth and go to the surface of the earth where gravity is 1 g we will only have to go about 4,000 miles. This is not very far to have to go, but this climb will not go without effort because as you go to the surface of the earth you will find that it takes more energy to climb out the further you get away from the center. This is the reverse of what happens when you leave the surface and go into space. If you have separate objects at the center of the earth you will find that the farther apart you move the objects from each other, where they were just floating around next to each other, the more energy it will take to separate them and the more they will want to go back to the center. More on this later.

Now let us take a black hole. If you could get to the center of a black hole you once again would find that there is no gravity, a lot of pressure but no gravity, as you tried to leave the center and go to the surface or event horizon you would find the task impossible, energy wise that is. Black holes can be very small and very large. A small black hole then would have a huge gravity gradient from its center to its surface over a small distance and still have no detectable gravity at its center where a small area of space would just be very dense.

What I am getting at is how dense can gravity get? How sharp can the gravity curve become before it cannot get any sharper and is there a maximum density that space time can withstand or does it have a threshold level? Is the event horizon at this threshold? And what is the UGD of space time that the earth may be in at this moment? It is obvious that we are curving space from something but we just do not know what this something is or how dense it is. This can put a completely different outlook on how we observe things in space, one we never have given much thought about or considered.

2.4 Uniform Space Density

In our first example the light pulse was passed through a crystal that remained uniform in density all the way across it. This could be thought of as a uniform gravity density. Now in my laboratory I am going to make that uniform crystal very large but dense enough to incorporate our own solar system. Here I am going to assume that mass shrinks, is delayed, and time slows down in space that is denser than the one we are in.

To save space in my lab I build a crystal that is 100 feet by 100 feet with a density that will slow light to a travel time of 1 inch per second. Now I am going to place the sun at the center of my crystal and the earth at a distance of about 40 feet so it takes a light pulse about 8 minutes to travel from the sun to the earth. This is about what light takes to travel from our sun to the earth in our real world or my reference frame.

If you in your reference frame were on the earth, which I have placed in the crystal, it would take light to travel from the sun to earth in about 8 minutes your time. It would also takes 8 minutes in my time but obviously the light in my time only travels about 40 feet, not the 90 million miles in your time. The difference of course is the time difference in each of our reference frames. Here there is obviously a great deal of difference to our observations when it comes to the speed of light. In my reference frame light travels at 286,000 miles per second and I observe your light speed at 1 inch per second, but in your world in the crystal light travels at 286,000 miles per second like it always has. This is because your time has slowed to compensate the difference in distance.

2.5 Faster Than Light

If I use this example of the earth and the sun I find that I could travel from the earth to the sun in mere seconds because I only have to travel 40 feet, not 90 million miles, and better yet, if I travel at the speed of light I could reach the sun in about .000000005 seconds or around that

time. This in your reference frame would be considerably faster than the speed of light but in my reference frame I would not have violated any physical laws.

So is this how I could travel faster than the speed of light. Well, not quite. If your idea would be to take a ship, transform it into a lower density space like my reference frame, then move it from the earth to the sun in mere seconds and transform it back to your reference frame or the denser space you came from, you could say that you then traveled faster than the speed of light. This sounds good, but think about it closely. First of all, when you left earth and went into a less dense space your time speeded up in relation to the earth you left, then when you made your trip to the sun in mere seconds and returned to your normal density your time slowed again. In this process you will have found when you returned that you were older by a great deal of time compared with those of earth which you left. Therefore, thinking you saved time, which you may have, in fact you aged faster therefore did not save any time at all.

2.6 Confusing

What you did in reality by going to a less dense space was speed up your time, in effect slowing theirs down. If you could be observed by those on the earth you left, they would see you speed up and age faster. The effect would be just the opposite if you were to leave earth and travel near the speed of light, in which case you would slow down and earth would speed up in real time so here when you returned to earth after being gone a very short time you would find earth thousands or millions of years older than you. If you move to a less dense space you would find that you aged thousands or millions of years while earth hardly changed at all. This would mean that your trip actually took you longer than you expected.

So moving across space in this manner is self-defeating. If you're a good science fiction fan and build a space ship that has a chamber in which you could lower the density of space inside that chamber as your ship travels, you could in essence neutralize the slowing of time in that chamber and therefore travel near the speed of light at earth's normal time. With traveling to a star 1 light year away and traveling at the speed of light, you, in the chamber, would only experience 1 year of travel. In other words, you would be one year older instead of only a few minutes older when you reached the star.

2.7 Gravity in the Crystal

But there's more, for I have changed many parameters with the earth and the sun in my magic crystal and I know by my measurements that physically they are only 40 feet apart by my reference frame. But by doing this I did not change the mass of the earth or the sun, which means I did not change their gravitational fields.

So what I observe when looking at my creation is strange. I see that the earth does not move around the sun at the proper speed. It moves too slow and should fall into the sun. It should have increased its orbital speed. All laws of physics demand that. The earth should fall into the sun or increase its speed. So what has gone wrong?

Those on the earth of course sense no change. The earth is still its normal distance away from the sun and the earth still goes around the sun in one year and gravity remains the same. Did gravity change? Is my observation of the earth to sun relationship wrong? If the overall mass of the sun did not change and gravity in effect did not change, then why does the earth, which is now moving too slowly around the sun, not fall into the sun? Is the effect that I am seeing an illusion strictly because my observation of it is from a different reference frame?

2.8 Mass of an Object

The mass of an object is a measure of its resistance to acceleration. This one sentence means a lot more than you think. When an object is moving near the speed of light its mass has increased requiring more energy to make it go faster. But in reality the mass of the object has

not increased but only the energy to increase its motion has increased. If this is the case then why does it take an increasing amount of energy to keep accelerating the object'

The answers to this are simpler than you think if you figure time into the events. If you determine the amount of energy to increase the speed of an object which is moving near the speed of light it is tremendous because the object appears to be extremely massive and in fact it takes that amount of energy to increase the object's speed further.

Now let us look at the object from a different view. Let's make the object a space ship which starts accelerating to a constant increase of 1 g when it leaves earth. For the ship to increase its speed it has to fire its rockets and expel material out the back of the ship. When it does this the material leaving the ship can only go away from the ship at certain rates of speed. When the ship reaches 90 percent of the speed of light the material leaving out the back of the ship can only be expelled at 10 percent the speed of light. In this example I am assuming that the drive of the ship is expelling material out at the speed of light when the ship first started its journey.

Here it is obvious, in my reference frame, that the ship has to increase the amount of material or energy to maintain its increase of speed. The energy leaving the ship is in reality just dropping out the back of the ship. To the ship of course this is not the case because the ship's time has slowed down and those in the ship do not realize this. This would mean that if the ship measured its increase in speed it would find that it is still increasing at the same rate as it started. To the observer this is not the case because the amount of energy necessary to increase the ship's speed due to its increase of mass could not keep the ship increasing at the speed at which it started or the 1 g.

Time in this case is the problem and the increase of energy to drive the ship is only due to the fact that the energy leaving the ship is slowed giving it less of a push. At 99 percent the speed of light the energy leaving the ship has virtually added no speed to the ship's motion thus requiring more energy to drive the ship giving it the illusion of having more mass. It is the way we determine mass that is incorrect because there is no increase of mass, only motion.

Again the culprit here is time. The person inside the ship traveling near the speed of light thinks he is still accelerating at 1 g because he is trading the slowing of time with motion. It is not known to him that his increase in speed is not taking more energy to keep acceleration at 1 g but in reality is taking more time, even years or thousands of years depending on how close he is traveling to the speed of light. In this case he has to travel a huge distance to create the same 1 g force on his ship compared to when he started the trip. Because of the longer time he has to expel energy to maintain the 1 g force, this energy is perceived as an increase of the ship's mass by those outside making the observation. Here he has to move a longer distance through space with a continued use of energy.

There is another thing about mass and motion. If two objects were traveling near the speed of light next to each other their observation of each other would show no change in mass or time and between the two they would have no energy of motion, for energy of motion is only observed when an object is moving at a different speed compared to yours. Observations of moving things in space are misleading and very deceiving.

2.9 Movement through Space

I have talked about movement through space in different ways. But movement through space is difficult to describe. For instance, if a black hole is so dense and everything in it is traveling at the speed of light and is at zero time, how does the black hole move through space? Or how does mass itself move through space without the slightest hindrance in its motion'

I have described mass as a vibration of energy supported by the fabric. If the speed of light is the fastest the fabric can sustain energy, how can this energy exist and still move at the speed of light within itself? This of course brings up two parameters which seem to coexist together, and those are velocity and time. But we have not been treating time as a parameter but as events after events, but in reality time must be considered a parameter. It is the word that is confusing because it is the word we use to describe events. Time to mass is the slowing of the

internal movement of the particles while time to us is event after event of that movement. But slowing in mass then must have a reference. Then what is that reference? Here I can only think of one and that is the UGD.

The other word we use quite often is gravity. It too has a double meaning. Gravity by definition is the difference between two curved space times in space and has a simple mathematical representation. A uniform space time, or as I call it UGD, has no gravity. A gravity wave is a fluctuation either in curved space or uniform space density. It is a wave that has no reference because it itself varies time and motion and it is time and motion that we measure things by.

Gravity as far as we know exists only in relation to mass and energy. If there was no mass in space, space would have no gravity. Here it is obvious that we need a different word to express the uniform gravity components of the fabric.

I am poking at the idea here that UGD in the fabric is in fact what mass is made of and that the uniform gravity components of the fabric is how mass moves so freely within the fabric. Here I am tying the component uniform gravity to mass for mass is the component that causes gravity itself.

Gravity waves are misleading and it is not known if gravity waves exist. It is obvious that gravity fluctuations exist simply due to the fact that an object moving in relation to us will produce a weaker or stronger gravity pull upon us, just like the moon does to the earth. If the moon was vibrated back and forth rapidly, closer and further from the earth, the earth would be pulled back and forth, however if the moon's vibration was too fast the earth, having to overcome its inertia resistance to motion, could no longer follow the vibrations of the moon. All I am saying is that mass does not respond instantly to a gravitational change, it is not saying that the mass does not respond instantaneously to the time change that the gravity change causes.

This of course does not give us any clue as to the speed of the gravity waves. Since gravity fluctuations move with any energy burst, such as the energy released by an exploding star, the gravity waves obviously travel with that energy. Therefore the wave appears to travel at the speed of light.

I do not know how gravity radiation could take away energy from an object or how it could be radiated independently from mass such as light is. Our sun could increase in size or decrease in size but if its total energy mass did not change its gravity would not change. Its surface gravity would but its total gravity would not as long as you stayed at the same distance from the sun. The sun's gravity should only change when the energy or mass of its outpouring passes the orbit of earth. At least this is my present understanding.

2.10 Size of our Universe

Is our universe really the size we think it is and is there something disguising its real dimensions?

If I could take our solar system and place it in a uniformly dense space as I did in the example above with our sun and earth, is there something that could tell us how far apart the stars are? Since our observations of our existence are very stringently controlled by the limitations of our senses and the relativity of our measurements we are at present unable to breach this dilemma unless we have a better understanding of what space is doing to our observations.

Our universe could in fact be very small and the stars which are millions of light years away could in fact be just across the room as my mythical crystal in my laboratory has demonstrated. But this is an observation from a separate reference platform, for if I was to enter that same crystal I would find that the universe would immediately expand to its correct size. Furthermore, all physical laws that were violated from my observation would be back in place and normal. This of course is because the two reference frames became one.

Here I am saying that the uniform gravity density of space is governing us, for it is acting as a reference that corrects time and motion. Without this correction the universe would be in a chaotic state. In this respect you could call the gravity density of space a reference in which we pivot about keeping everything in its proper order.

In this case UGD plays a distinct role in the functions of mass in which we derive time, and distance, and the speed of light, all of which now become variables hinged around the uniform gravity density of space.

2.11 Faster than Light

I mentioned earlier something called tunneling. This is more like science fiction stuff where one could travel faster than light through black holes, wormholes and folded space. Could these things be real?

This is all fiction of course, but let's take another look at uniform gravity density of space. If I were to take my magic crystal, the one in my laboratory in which I have placed our solar system, and with another bit of magic am able to vary the density of this crystal to any number I wished, what would I observe when doing this? Starting with my basic observation in which the earth is only 40 feet away from the sun I would be observing that the orbits of the earth and the other planets were not moving correctly.

But now I turn the knob and start decreasing the density of crystal. Here I will observe the size of the solar system increasing, the earth will start moving further from the sun, and the speed of its orbit will increase. If I continue this process until the uniform gravity density in the crystal is the same as the uniform gravity density of my laboratory I would find that the distance from the earth to the sun in your solar system is the same distance as the earth to the sun in my solar system. Both will measure around 90 million miles away, not the 40 feet away before I started this process. Is this what happens when we observe objects in a different uniform gravity density than we are in? In this situation I would also find that the clocks in your earth will be running the same speed as my clocks.

Now let's take this a little further. Let's decrease the density of your solar system even further. In this case the earth will move even further away from the sun and time on your earth should speed up. Here we would now be in the reverse situation than from which we started where you would be looking at my solar system getting smaller as if I was the one inside the crystal. Here my time would be running slower than yours and my solar system would no longer appear to be obeying the laws of physics.

So what does all this have to do with tunneling or wormholes in space? Well, what it means is that the uniform gravity density of space sets the real distance between all the bodies in space. And the distance we measure in our experiments is relative to the real distance of objects in space. It also means that if one somehow could use the properties of the uniform gravity to travel through space they would be going the real distance between planets, not the perceived distance we are locked into. If you could travel this path like in our crystal where the earth was only 40 feet from the sun, one could get from the earth to the sun faster than the speed of light and not break any physical laws.

There are experiments which had been performed here on earth that seem to violate the speed of light. The experiments may be breaching the uniform gravity barrier somehow, for if the universe is in a very dense uniform gravity the real distance between objects here on earth are far closer than we perceive and if you could transmit information through this uniform gravity density at the speed of light you would find that instead of the miles you expected it to travel in the media you would only be traveling a few feet, thus getting there before you expected. To our observation this would be something traveling faster than the speed of light but in reality it is only traveling a shorter distance thus keeping well within the laws of physics.

2.12 Detecting Gravity Waves

Gravity fluctuations always travel with the movement of mass or energy. If a burst of light is observed from a supernova a gravity fluctuation should also be observed moving with the energy. This would mean that the gravity wave was traveling at the speed of light which would be incorrect because it is merely moving with the energy.

Detecting a gravity wave fluctuation is quite difficult because of the inherent gravity background noise. Detectors to detect the gravity wave are being built at this present time. But any detector has an inherent problem of detecting the gravity fluctuations of every star, planet, or galaxy in the entire universe. This is true because we cannot differentiate direction from which a wave is coming from (It is believed that a gravity wave contains a polarization property like a radio wave but this has not been confirmed. It is also believed that the impinging wave direction can be determined by how the wave crosses the detector; this is only true if you assume the wave travels like that of light. Also, time changes in the detector when a wave passes it causing possible misunderstanding of the results.) nor can our detectors focus such waves to amplify them, meaning that our detectors will observe all the gravity waves at the same time. It becomes obvious that they will receive signals very much like the signals we received from the background radiation or just a constant background gravity noise.

To focus gravity through some form of lens would be helpful but it is virtually impossible to focus something that is not moving. Here you are changing the property or density of the UGD and this does not lend itself to detection in the normal sense, which is taking energy out of the propagation and converting it to electrical impulses which we can use. Since gravity in most cases is static and not moving you cannot focus it. If you had a funnel in which you held up in front of a fan you could focus the air passing through it but if the air was not moving this becomes impossible unless you move the funnel through the air instead.

Now going back to the speed of light. It is quite obvious that the speed of light in my magic crystal varies with the density of the crystal. If the uniform gravity density in our universe varies then the speed of light in our universe also varies. But because time also changes with uniform gravity density the speed of light as we observe it stays constant. Our reference platform. Here it is only the observer that sees the change.

But here is the real meaning of what I am trying to say. When I put the sun and the earth in my magic crystal their masses did not change. The earth and sun may have changed in size and the distance between them has changed and their time slowed down but their gravity stayed constant. In this circumstance if I were to calculate the mass of the sun by using the distance from the sun to the earth and the orbital speed of the earth I would find that the mass of the sun would be far different than the mass I calculated before I place them in the crystal. In other words, because I am observing the system from a different reference frame I am miscalculating. In this sense my overall judgment and determination of the mass in the universe is incorrect.

It is quite possible that the speed of a gravity wave is a constant and the speed of light is relative. But when we observe gravity from a platform of a variable we would believe that the gravity is a variable and not the speed of light. The earth does not fall into the sun in my crystal because time is traded for motion making gravity to the earth look the same.

2.13 Universe

Here I am saying that the speed of light is only valid within our present uniform gravity density no matter what the density is. But on the other hand, gravity has a different velocity than what we use for light. So the only way the gravity wave's velocity and the speed of light's velocity are the same is when the uniform gravity density is sufficiently small so the two velocities match. One is the energy movement. The other is merely the determining factor on how the energy moves. One could say that light and mass carry energy while gravity waves make changes to that energy. Also, when you have a change of density in space you also have an inherent gravity difference.

If you carry this out further our entire universe could very well be in a very dense uniform gravity which would mean the distant stars may be only a stone's throw away as far as the gravity wave is concerned. If you equate the gravity wave velocity to the speed of light, our speed of light, and use the gravity velocity to reach the stars you could get there easily. If we have a star that is 1 million light years away, our speed of light, it may be only 1 light year at the gravity wave velocity simply because it is much closer in reality by the UGD standard.

Tunneling may in fact be gravity wave transfer of mass from one point to the another. It is our environment that constraints us from seeing the true nature of the universe and why so many strange phenomena come out of our theories such as folded space and wormholes which predict the phenomenon of cutting across space.

This also could account for some of the strange things we see in the cosmos. For instance, we see that the stars in a faraway spiral galaxy do not rotate as they should but all move at the same speed, in which case some should fall into the center of the galaxy and some should fly away from the center of the galaxy. These galaxies which we are observing are very far away and the uniform gravity density may be greater there because they are closer to the center of the big bang by millions or billions of years. It could be that their increased UGD is distorting our observation in which we are incorrectly determining the galaxy's mass and the velocity of the stars traveling within them, just like my observation of the planets in my magic crystal.

It is also coming to light that our universe is expanding faster instead of slower, which would not be the case if gravity is slowing down the expansion as first thought. This increase was determined by measuring the change in the velocity of some supernova explosions some 9 billion light years away. But something 9 billion light years away is also 9 billion years closer to the big bang, or about half the radius that we are at present from the big bang and 9 billion years in the past. At that point in space the overall gravity density is far greater than what we are in at the moment. It is like me in my laboratory looking at my magic crystal but not quite as extreme. Is it possible that the stars that were measured are moving from a higher density space to a lower density space giving us the impression that they are in effect speeding up due to the fact that when one moves from a higher density space to lower density space one gets an expansion of the star and its motion, like when I decreased the density of my magic crystal. Time speeds up and distance between the sun and the earth increases. Since all stars in our universe are visions of our past and the further away the stars and galaxies are the closer they are to the big bang and hence live in a thicker overall gravity density field, thus skewing and distorting our observations.

Another point here is, it is not known if there is any mass left at the center of the big bang. If all the stars and galaxies are expanding as if on the surface of a balloon being blown up, it is quite possible that there is no mass, thus no gravity, at the center of the big bang. This will only leave the gravity between the stars and galaxies at the surface of the balloon to hold the expanding universe together. It is postulated that the universe's increase in its expansion rate could be due to something called dark energy which no one has the slightest idea of what it might be. But is it our observations that are incorrect instead? If this increase we see is due to the decrease of the UGD working against the gravity created by the mass we come pretty close to a balanced system.

2.14 An Obscure Thought

At the beginning of these articles I have used the big bang for a starting point, but how could all this happen if there was no big bang? Let's say that there was no big bang but the universe was created more subtly, like raindrops forming around particles of dust drawing moisture from the air, in this case the uniform gravity density. Thus a universe was created from more of a cold start than a hot one and that there at one point was some catalyst which has since vanished.

But if this was the case how does one explain the movement of all the stars and galaxies in the universe for they are all moving away from us? This is confirmed by measuring the red shift of the light coming from the stars and galaxies.

For thought only, I am going to create a scenario which could explain what we observe in the heavens and not contribute it to a big bang. I have hinted that the UGD is like a substance and that all mass comes from that substance. So let's say when the creation of mass takes place it decreases the UGD of space. As the overall density of space decreases by the amount of mass created, time speeds up and the size of the universe increases just like in my magic crystal. So when I observe the universe I am observing it getting larger and since the ratio between the size increase of objects to the distance between the objects is quite high we will see a correspondingly

red shift of light just like the one I would see if the universe started from the big bang.

In this case I would not have to manufacture dark energy to explain why the universe is expanding faster or need the big bang at its starting point. The whole process of the expansion would be determined by how fast the UGD would be decreasing and how much matter was being created to continue the decrease. The two forces would be well balanced eliminating the need to create some hidden particle or force to cause the phenomenon.

Another point. It is believed that space can be curve or pulled around by a large massive body when it rotates. The planets and stars and black holes are said to draw their space around with them. Is this true? In my explanation of what gravity is the observation of that phenomenon would be true, but in reality space is not curved or drawn around when a massive body rotates. When I explained gravity I said that a gravitational field follows you around. If you walk down the street your field moves with you. This is apparently true with all mass. The space distortion is inherently linked to mass causing it to move with it, so when any mass is put into motion that space distortion follows that particular mass. The speed of rotation of the earth is greatest at the equator. The mass at the surface of the earth is moving around 1,000 mph so that mass is effectively moving through space bringing with it its space distortion.

If you take my example of the spherical magic crystal and rotate it and pass a light pulse into it you would get a better picture of what I am trying to say. With the magic crystal rotating, the light pulse will still endeavor to pass straight through the crystal because it has its own forward momentum. But due to the fact the crystal is moving, it will have a tendency to drag the pulse with it. It is not hard to see that when you transmit energy through the media which is carrying it, that media will change the chorus of that energy. So when we say that mass is curving or drawing space around it, it is really incorrect because the movement of mass through space is merely dragging the light we are using as the detector causing it to curve making us believe that the space itself is being curved when in fact it is simply in motion.

As I said, far-out thinking. And maybe too far-out, but it is somewhat of a logical outcome if you think of space as I have envisioned it.

2.15 Conclusions

I have thought about gravity for over 40 years but it is only in the last two or three that this picture of what I have given you has come to light in my mind. I have always thought that we have been looking for what gravity is, a simple thing, and that we have been looking right at it all this time and not seeing what it is. It did not occur to me that gravity itself was the clue to what I was looking for, for without the earth's gravity we would not have a clue that there could be uniform gravity in the universe because we cannot detect uniform gravity. So the clue to its existence is the stuff that has been holding us to the ground all this time. And here curved space time only turns out to be a variation of what I call the uniform gravity density.

Some of the most difficult things to see are those that you can look at and because of their simplicity and plainness elude our senses. I could kick myself for not seeing this years ago. In these articles you may have noticed that I have not gotten into how gravity could be defeated which is why I got into this in the first place. This is because all my thoughts on controlling gravity and how to make an anti-gravity device have failed. This led me to the realization that I did not have a good understanding of what gravity might be. So I turned to that end. These articles were the results of that endeavor.

Can we build an anti-gravity device? What are we doing right now to defeat gravity? What are particles doing to cause tunneling and what are particles and the other three forces in relation to gravity? In reality, I believe that gravity is what guides their existence. See Section 3.

3 Properties of Universes

The characteristics of the universe are produced by the particles that make up the universe giving it many distinct qualities. The particles and their forces create a great number of guidelines

that the universe must adhere to. The smallest particles we now know of are the strings. These particles seem to have a maximum size and a limited set of vibrations. For some reason the fabric does not permit stable basic particles beyond certain sizes. There is apparently a set of laws or a controlling window that permits only string vibrations of a certain type which govern the string's characteristics and beyond this window the string becomes unstable and cannot exist as a particle. However the fabric does permit these basic particles to get together and form larger particles. The most common larger particles we call protons, neutrons and electrons. And then of course there are a host of other types.

But then there is another window in the fabric which comes into play because these three basic particles form the basic atom and these atoms are limited in size as well. If we look at the periodic table of elements we find that there is a maximum size of the basic elements in the universe. Above this maximum size the atoms become unstable and can no longer hold together. This of course is due to the underlying forces which are holding the three basic particles together, and these are the four major forces that we have identified in our universe. These forces are gravity, the strong force, the weak force, and the electromagnetic force. The strong and electro-weak forces rapidly drop-off in strength from the particle they are associated with, therefore limiting their effectiveness over distance and giving the particles many other characteristics.

The next level in our universe's makeup is a molecule which is made up of a combination of atoms. These molecules also have a size limitation but they can be combined to form larger structures. Next of course come the planets, suns and galaxies, all of which seem to have no size limitation, although in fact they do. A star can only grow to a certain size before it collapses or explodes.

Each step in the creation of our universe seems to have its own limitations, each of which are based on the basic characteristics of the string and its fields of influence. All forces materialize from the string level and can be tracked up to the universe's scale.

3.1 Gravity Control

Is it possible to control gravity? That is a simple question but with no simple answer. But let's give that some more thought. We indeed can control gravity and in fact we are at this very moment controlling gravity. It is just not the type of control we're looking for.

The type of control we are looking for is that of a device that will make our car hover a few feet off the ground with no propellers, wings or rocket jets. We would just like to have it quietly sit there until we need it. We would also like artificial gravity in our space ships and space stations. Others would like to use some form of gravity device to drive their space ships far out into space. Others think that controlling gravity will give them free energy thus relieving the world of relying upon its natural resources. And there are a host of other things people believe can be accomplished with some type of gravity control.

But I am a realist. Gravity is only another force that will take energy to manipulate. It is not a miracle cure for our energy woes and will not do all the things we wish it to do.

At this very moment we are creating anti-gravitational forces. If we climb the steps in our house we are in fact overcoming gravity. If we drive our car up a hill we are overcoming gravity. If we fly an airplane we are overcoming gravity. In fact all methods that move us farther from the center of the earth are in fact overcoming gravity and all these methods are very efficient. When we climb the steps in our house we move upward a few feet but the earth moves downward a smidgen. All forces that push against the earth in any way, shape or form move the earth. All these methods accomplish their task by liberating energy. This energy, no matter where it comes from, generates heat which is then vented to its surroundings. This all comes about from the breakdown of higher forms of energy to lower forms of energy. Scientists call this an increase in entropy.

If we throw a rock into the air we are liberating heat to produce the motion to throw the rock. The rock takes on motion and slows its time. When the rock falls back to the earth it gives up its motion and speeds up its time to where it was before it was thrown. But the rock

laying on the ground is actually still in motion for the conservation of energy is never lost.

All these actions can happen only because there is an equal and opposite reaction force. It is this type of force that drives our rocket ships into space. These ships are given forward motion by spewing out material at high velocities in the opposite direction of travel. Under these circumstances the ships do not push directly against the earth to gain their motion but the motion of the ships does in fact change the motion of the earth as the ships go out into space.

When a ship or object goes into orbit around the earth that orbit is sustained by the ship's velocity. In a stable orbit the ship is in a steady state of falling but never reaches the earth. The ship you could say is in a steady time zone, meaning that the time variants across the ship provide the necessary acceleration of the ship towards the earth in relationship to its velocity so that the ship continues to fall at a rate which keeps it at a constant distance from the earth. If the ship were to slow down, the time variant across the ship would change and the ship would correct its orbit accordingly.

To accomplish all these things takes energy: to throw a rock, to put a ship into orbit, or to climb a hill. This is all the energy necessary if you're efficient when you move an object above the surface of the earth. So you could say that if I could produce a counter gravity force efficiently I would need no more energy than it would take to lift an object off the ground, other than the fact that you would have to continuously supply that energy. So if we could produce a counter gravity force efficiently I would in fact have sufficient energy suppliers to accomplish the task. But the problem is how do we convert energy to a gravitational control system. Of course no one on earth has done such a thing and that is because mass is always compensating itself by always trading motion and time to maintain a constant energy creating a perfect balance in the uniform gravity density (UGD).

In controlling gravity, the end product that we are looking for is a form of gravity control without using the equal and opposite reaction force. This is no simple task for we do not understand gravity enough to convert any known energy source to change gravity at all. I'm going to explore some hypothetical ideas on what we might be able to accomplish in this endeavor and how we might possibly accomplish it.

First I'm going to explore what we can and cannot do with some type of gravitational control system. A gravitational device will have limits on what it can or cannot do. Let's look into some of those limits.

3.2 The Gravity Box

I have said that gravity will not give us free energy. It will not. When used as a spaceship drive, it will not be able to push our spaceships effectively over large distances in space. If we create some form of anti-gravity its major use will be local or near the surface of the planet or in any other heavily curved space time. This is because the gravity we experience is only produced by curved space time or a difference in the density of the universal UGD between two points of space.

If a balloon filled with helium was let loose in a room filled with air and that room was in orbit, which creates a uniform air pressure throughout the room, the balloon will just sit there. If an anti-gravity device was built it would be effective only where gravity exists. Any uniform state of gravity would give our gravity device nothing to work against. It would be like the balloon in a uniform air pressure. As I have mentioned we can detect no gravity in a uniform gravity dense field, therefore there is no way to produce an anti-gravity device if there is no gravity.

What can we expect this device to do if we could build one? Let's build a hypothetical gravity control device. Let's say I have developed a method that allows me to create a curved space time field between two parallel plates. I place one plate above the other calling it the top plate and the one on the bottom the bottom plate, and I have left sufficient room between the two plates to place objects. These two plates are mounted on a platform that rests on a scale in

which I can measure the overall weight of the apparatus. I'm assuming that my device is fairly efficient, therefore not taking an excessive amount of energy to operate.

Now let's see what might happen if I operate my anti-gravity device. First of all the change of gravity, or the change of the gradient of the uniform gravity density in the device, is confined to the inside of the device since I have envisioned no method yet that could extend a gravity change outside a controlled environment. I have installed a control knob which allows me to vary the density of the universal UGD from the bottom of the device to the top of the device or vice versa. This is the same as varying time between the top and the bottom of the device.

Now I turn on the power and adjust my control so the UGD between the two plates is uniform. That means there is no gravity variation or time variation between the two plates of the device, therefore I have cancelled out the earth's space time curvature between the plates. To do this takes a certain amount of energy which would have to be supplied continuously because unlike an orbiting spaceship the device is not in motion. The effect would be like a helicopter hovering above the ground; it needs a continuous supply of energy to keep it in the air. This type of gravity control suffers the same restraints as the helicopter. We do not get something for nothing.

Now that I have neutralized the gravity within the device one would assume that if I placed an object between the two plates that object would simply float around. It would, but only after forcing me to increase the energy I am supplying the device to maintain its neutrality. This is because the object would have to shed the motion of the earth's gravity that it was using to hold it to the ground. If I placed a 10 pound object between the plates I would have to increase the energy input to my device until the object became weightless. The amount of energy input necessary to do this would be equivalent to the amount of energy needed to lift this 10 pound object into a self-sustaining orbit around the earth providing the efficiency of both systems was equal. The real difference here is that the energy needed to produce a zero gravity environment for this 10 pounds will have to be continually supplied to maintain this condition while the energy needed to put the 10 pounds in orbit is the only energy needed because the 10 pounds has gained motion. The device is producing relative motion by changing time.

Now what happens to the weight of our device when all this is going on? If I place the 10 pound weight in the device and the device was off, the device would become 10 pounds heavier. But what happens when I turn the device on and neutralize the object? Will the device become 10 pounds lighter? This is what you want to happen. But no, the device will not become 10 pounds lighter. This may be very discouraging but you'll see why as you read on. But if the weight is just floating in the device how can that be? The weight when neutralized would in effect be accelerating itself upward at the same rate the earth would be accelerating the weight downward, thus producing the same effect as the weight would see in orbit. Here the overall weight of the device and what is inside it is strictly a local condition and any local condition is still subject to gravity. We are not, with this type of device, pushing against the earth's gravity.

How would I create a device that will lift objects off the surface of the earth? The first thought that comes to mind is that if I set my controls so the weight inside the device is pushed up against the top of the device that weight should lift the device off the ground. But if you tried this experiment you'd find that not to be the case. What you would find is that the top of the box and the weight are being pressed together very tightly but the overall weight of the device has not changed. This is because you're dealing with a local closed loop system.

This type of device, if one could build one, would be quite useful in producing an artificial gravity in a space ship because the effect of the system would only occur between the two plates. When we use this device to change time directly across an object we are creating a local gravity environment. A second idea would be that if you could change the time difference across individual particles thus nullifying the gravitational time reference of those partials you could create the same anti-gravity effect.

At present the only method we currently have of changing time is with the use of motion or a gravitational field. To create a zero gravity state at the surface of the earth using gravity you have to have another earth of equal mass just above you. This of course is not quite practical

so is there another way to change time across mass other than using another massive object'

We have an extreme advantage of dealing with gravity in a closed system but when it comes to dealing with the gravity of the earth we have a completely different problem. Earth's gravitational field could be considered a closed system but the problem is we only have one-half the system. For us to do productive work we need a closed energy system because without one we have nothing to work against. That is why the only method we have at this present time to control gravity uses the equal and opposite forces we have at our disposal. Does gravity have an opposite force? And if so, where is it and how can we control it to produce an anti-gravitational force to lift us off the earth'

3.3 Traveling through Space

There are theories that would use the space fabric or the UGD as a means of propulsion. This is done by simply creating a vacuum in front of you and pressure behind you thus creating a forward motion. Changing time in space is the same thing the earth is doing but as you can see it does not give the earth any motion. When in uniform space the gravity curvature around an object is perfectly balanced and will not produce an acceleration.

The effect of creating a vacuum in front and a pressure behind us in space already exists in nature. When mass is set in motion it creates a slower time in its direction of travel and a faster time behind it. As explained earlier, mass migrates toward a slower time or a denser UGD. This means that mass itself is falling into its own distortion keeping the object in motion. This distortion is not produced by the energy within the object but by the energy given to it by the forces that created its motion.

To do all of this of course means that one must be able to use energy to change time. Now it's hard enough to think of how gravity works much less how time works. In fact changing time would seem more difficult than changing gravity. I only know of two things that change time and they are motion and a gravitational field. Is there any possibility of changing time and doing it with some energy source? Is there something in nature that gives us a clue of how to do this, and if so, where is it hiding and why have we not observed it? Or like many things, have we been looking at it all the time and because of our nature have not realized that it is starring us in the face at this moment'

3.4 Particles

Strings, quarks, protons, neutrons, electrons, plus the hundreds of other particles and all their anti-particles of the particles build the molecules and substances that make up our universe. It is clearly recognized that mass and energy are equivalent but energy by itself does not create a gravitational curvature like mass does. Is this possible or is the energy just too feeble to create a curvature of space we could possibly measure? However it is quite clear that energy has a connection to mass.

I start this Section by asking a few basic questions. I do this because if I am to try and visualize something I need something to visualize. Visualizing a string as a vibrating object brings up more questions than answers, such as for something to vibrate, by simple logic, something has to be there to vibrate in the first place.

If a string vibrates, what is the composition of the string that promotes the vibration? In other words what holds this vibration together to form the string? The only answer we have at this point is that the string vibrates because energy causes it to vibrate. It is possible that a string is held together by the same mechanism that holds the electromagnetic waves together? Is it some form of a self-imposed force field? Or could it be just the four basic forces that we know of in the universe that are keeping the string intact.

What keeps the vibration from decaying? Particles seem to last forever. The internal string vibrations are virtually inaccessible to us in this universe. The basic energy of strings strictly obeys the laws of conservation of time, energy and motion. You cannot destroy that energy.

The strong force; where did it come from? The strong force is presented to us as a force conveying particles called the gluons, and these gluons are said to have a charge which can produce a magnetic field much like an electron. It is confusing enough trying to understand why an electron, when moving through a conductor, produces a magnetic field, and when stationary or free simply has a charge. What is the electron doing to its environment to produce a magnetic field? As of now we have not the slightest idea what a magnetic field is. We can determine how a magnetic field is created and all of its parameters and characteristics, but not how it acts through the so-called empty space to effect other objects.

It appears that the more questions you ask the more you begin to wonder about particles and how they were formed by the big bang. The big bang at its beginning produced more than a soup bowl of single strings; it produced a multitude of different strings and possibly other particles. Apparently there were some strings vibrating at low frequencies and some at higher frequencies. The lowest string vibration is said to produce the gravitational curvature. If this is the case it is this string which produces what we call mass. This would mean that this particular vibrating string must be contained in the main structure of all mass. Or does a single string that is vibrating at some frequency have harmonics or sub-harmonics which produce or create the gravitational curvature?

It is known that the proton has three quarks at its center and these three quarks only harbor about two percent of the proton's mass. The rest of the proton is composed of gluons which surround the outer portion of the quarks and a cloud of virtual particle pairs hovers at the outer portion of the gluon cloud. If gluons and virtual particles have no mass, where does the rest of the mass of the proton come from? If the quarks have so little influence inside the proton how do they hold or maintain the surrounding gluons? Are the gluons somehow an integral part of the quarks? If you could get a quark by itself, would it have a cloud of gluons around it? As I have said before, using a force bearing particle to account for gravity, the strong force, the weak force, or the electromagnetic force bewilders me. My mind seems to be stuck on continuous fields. But we have something called duality and that is a particle acting as a wave or a wave acting as a particle. A thought I will explore later.

As you can see I am asking questions that have no answers other than highly specified conjecture produced by mathematical equations. It becomes quite obvious that we know a great deal of how particles act and respond and very little of the actual nature of their makeup.

Theory says that it was in the process of cooling after the big bang that higher order particles were formed, such as the protons, electrons and neutrons. These were caused by the manifestation of the four known forces. These particles formed through phase transitions something like steam turning to water when it is cooled. The strings formed quarks and the strong force pulled together the quarks forming protons, neutrons and electrons. Shortly after that they formed nuclei and later as more cooling took place the nuclei attracted electrons producing our basic atoms. All this took place as the universe started to cool from the big bang temperature. Then over time and more cooling, the gravitational field became more dominant and produced the larger objects which eventually produced enough heat and pressure to cause the formation of molecules. Elements such as gold, platinum and lead could not have been produced by the simple cooling after the big bang but were produced in stars and neutron stars by an intense gravity.

There are also many theories which are gaining prominence that the big bang was not how the universe was formed. In Section 4 I will present a completely different picture of how this could have happened and still explain many of the phenomena we observe that lead us to a big bang conclusion.

Now we know protons repel each other and electrons repel each other and neutrons don't seem to care. For some reason protons and neutrons will come and stick to each other forming the nucleus of our atoms but even neutrons will only approach each other to a certain degree. There is a repelling force that prevents them from getting any closer to each other even though the same strong force is holding both of the particles together. There is a distinctive barrier between all stable particles. Some particles repel each other, others attract each other, but

never, unless under extreme conditions, will these particles merge together. They simply will stand apart and come no closer unless forced to do so. A neutron star is made up of pure neutrons, but even with the strength of gravity of that star you cannot get those neutrons to come together any closer than simply touching each other.

Why does the weak force oppose a weak force and the strong force oppose a strong force once these forces are established, yet the same forces hold the particles together? What is stopping these particles from merging?

This does not happen in the larger universe with gravity. In the larger universe if one galaxy or planet is drawn to another by gravity the galaxies or planets will collide and intermix forming one object. This is not so with particles; they will not intermix voluntarily.

It seems like a straightforward thing to say that the big bang created all the existing particles under some laws provided by a ten-dimensional system. At exactly what point gravity was created I guess would depend upon at what point mass was created. However strings are said to have no mass, therefore where did mass come from? I am not the only one asking these questions. String theory has many unanswered questions and strings are said to be two-dimensional because they are a point with length but the universe is three-dimensional and should be explained in that context.

Why do particles have barriers around them making them stable and preventing intrusion from other particles? Is this what the major difference is between what happens in space and what happens at the sub-atomic level? Is this where the separation of quantum mechanics and relativity takes place? What is the barrier? There are apparently several barriers. One surrounds the particles that make up the nucleus or the strong force, and one surrounds the nucleus and holds the electrons or the weak force. In certain atoms the electrons can move fairly freely in and out of the barrier while in other atoms the electrons are held quite tightly preventing easy movement. Scientists have connected together the strong force, the weak force and the electromagnetic force, showing that they are different manifestations of the same force. In other words, all three forces are electrical in nature but appear to us in different forms.

Now let us stop asking questions and see if we can put some answers in place to make some sense in what is happening in our universe.

Life is a product of our environment. We are looking at our environment from within a closed system. It is the only reference we have and it severely inhibits our observations. It is only because of the ability for life to reason that we can look beyond our environment and then understand how it is constructed. So I am going to now take a look at something in our environment that is so commonplace that it might astound you to believe that it is something different than what it seems.

3.5 Time, Heat and Gravity

Now, don't get excited, for there is no evidence that heat has anything to do with gravity. Any object can be hot or cold and these conditions will not cause the object to get heavier or lighter or move through space. So what is heat? Heat is one of the most common things in nature however I believe that we have misunderstood what the nature of heat is. Although you might find this outlandish it makes some kind of common sense. Heat has always intrigued me because of what it can do to matter, but simply saying things get hot because we add energy to them leaves a lot to be desired. So I'm going to give you a different look at heat, one that might totally surprise you and make you think differently of the universe.

In the beginning of my article I brought up the subject of heat and hinted that in some way it may be distorting the space the atoms are in. Heat has fascinated me in its ability to virtually destroy molecules and atoms and its ability to tear them and everything else apart down to the string level when it reaches the temperature of the big bang. Heat effects virtually everything.

Most definitions of heat are presented as energy that is distributed randomly throughout a system. This energy is defined as radiation, photons, or just plain energy. Why this energy distorts the atoms or particles of the universe is unclear. It is simply stated that things get

hot and vibrate erratically. The amount of heat in a system can determine the stability of the system. There appears to be nothing that can escape the effects of heat. But gravity does not care about heat. You can have an object on the earth as hot as the big bang but it will still fall to the ground.

But heat does expand things. A hot-air molecule occupies more space, therefore appears lighter and will rise upward in a room. There is a vast amount of information concerning what temperatures can do to materials but very little information about how heat actually does destroy atoms other than they just vibrate themselves to pieces and somehow equalize the forces of nature bringing about a higher symmetry. Almost all of the effects of heat can be linked to electrical properties which make up the three basic forces. Heat can be produced by a number of means such as friction, chemical reaction, electrical resistance, the breakdown of atoms and molecules, and the decay of atoms. It takes the generation of heat to cause an explosion or to do work of any sort. Most heat is liberated in the form of radiation and a great deal by infrared because it is the predominant characteristic frequency of electrons jumping orbits. Energy is released in the form of heat when an atom is broken down; when the weak force or the strong force is broken energy is released from the structure.

All objects move because of the liberation of heat. When energy is liberated between two objects the energy travels outward at the speed of light virtually pushing the objects apart. At least that is the result we observe, but it may not be an expansion or push that causes the objects to separate. When energy is released it is attempting to fill the universe and return to its original symmetry. But because the UGD density has increased it is held back from doing just that and manifests itself as an energy wave. We call this wave electromagnetic radiation. When I use the word radiation I mean electromagnetic radiation at all frequencies.

I described a hypothetical magic crystal in Section 2 in which I could vary the uniform gravity density of that crystal to a point of placing our solar system in it. I showed that when I increase the crystal's density, time and motion slows down because of the higher delay properties of the crystal thus causing the solar system to shrink to a smaller and smaller size. Because we are in a different frame of reference from the crystal we can observe these changes. If we were in the crystal or in its reference frame we could not observe the changes taking place.

I'm going to equate the shrinking of the solar system to that of the cooling of an atom. I'm going to say that the atom has a localized uniform gravity density which is separate from us just like my magic crystal is separate from me in my laboratory and that there is a barrier that keeps the density surrounding the atom intact. In this case the atom is at the same temperature that we are.

But it is obvious that the density of the local UGD that the solar system is in is quite different from that of my laboratory. And I'm going to equate a change of temperature to the change of the size of my magic crystal in which the solar system is confined.

Here the barrier between me and my magic crystal keeps the density of the magic crystal confined thus not causing a gravitational difference between me and my lab and the crystal. But my lab still sees the gravity produced by the mass inside the crystal. This is mostly to demonstrate what temperature may be doing. I will elaborate on the confinement barrier and its nature later and why it does not change or cause a gravity differential. As I have shown before, if I place the magic crystal on a scale and measure its weight I would get some number in which I could refer to as mass. If I vary the density of the crystal I would find that the overall mass of the crystal containing the solar system would not change, hence its gravity would not change even though the internal parts of the solar system in the crystal would in fact be changing. When I increase the crystal's density the planets move slower and closer together and everything basically shrinks. When I decrease the crystal's density the planets move faster and farther apart but gravity or the mass of the crystal remains the same.

Now let us relate this to an atom and say that the atom is surrounded by a force field created by its energy that maintains a very dense local UGD around itself. When I apply heat to the atom the effect is that the local UGD decreases, speeding up time and causing the atom to expand in relation to its surroundings. In this instance the atom is no longer at the same

temperature with the surrounding atoms and it is now demanding more space. If I increase its density it will get colder. This is what I would observe for my reference frame.

Here you might think that by changing the atom's density there should be a uniform change in distance of the orbit of the electrons from the nucleus of the atom. Like in my crystal, the planets in the solar system would move outward in proportion to the lessening of the density of the crystal. But in the atom we do not see this. Electrons do not move uniformly outward from the nucleus when we heat it or lessen its density.

This is because there are other forces involved and the freedom of movement of the particles within the atom have limitations. The electrical forces, or the weak force holding the electrons in orbit about the nucleus, are extremely strong compared to gravity in which our solar system is bound together. In the atom's case, when I lessen its density the electrons speed up their motion instead of moving outward because they are still held by the weak force their present orbit or shell. But as I decrease the density even more by adding heat, the electrons increase speed eventually overcoming the electrical properties holding the electrons in place and the electrons then jump to a higher orbit. If I were to increase the heat even more, lessening the density of the local UGD, the electrons will again increase their velocity until they again can overcome the electrical properties holding them there.

If heating would continue, eventually all the electrons would gain sufficient energy by their increase in velocity to overcome their electrical properties and fly away from the nucleus. Even more heating would do the same to the nucleus of the atom tearing apart the protons and neutrons, and so forth. By the addition of energy the particles are simply returning to their original state on their own. It is our reference that says they are being taken apart. All this of course we say is done by heating, but the reality is heating is only a manifestation caused by our reference frame. The real culprit here is the change of time and motion caused by the change of density of the local UGD. Heating, or the change of density, has the properties to take a particle and return it to a higher symmetry. This process in effect is bringing the four forces holding the atom together towards an equal strength or a higher symmetry.

So what we observed as heat or difference of temperature by our standards is nothing more than a time and motion change caused by the varying of the local uniform gravity density which is a part of all particles. This action conserves the particles' energy.

There has been a great deal of speculation on why quantum theory, the theory of the sub-atomic level, does not work well with the theory of the cosmos. This may be because our observations of particles is distorted thus forcing us to produce wrong conclusions. It's like taking my magic crystal and reducing the size of our solar system to that of a marble and then trying to observe the actions of the solar system from my laboratory's frame of reference. I will not get the same results that I get from going outside and observing the planets' movements around our sun.

The local UGD around our particles or atoms can vary in density drastically from the universal UGD of the universe. When particles were formed creating mass they also created a barrier between the universal UGD and their own. The strong and weak forces contain only a portion of the universe's UGD which shows up as mass. When I give energy to an atom or heat it I uniformly change the overall UGD of that atom which in effect changes, in different proportions, all the forces that hold the atom together.

When the string was formed it contained all four forces and they only manifested themselves when time and motion slowed. Here you could say that time changes create the symmetry breaking which causes the phase transitions we observe in nature. The only time changes we have been able to observe are in the larger scale of the universe and that is in a gravitational field or an object put into motion and these changes can only be seen in reference to our frame of reference. But we know that heating and cooling does in fact change time. If you heat a clock it runs faster; if you heat an oscillating crystal its frequency increases. To make highly accurate measurements of time we must use clocks that are held under highly stable temperature conditions. So now we have added heat as another method of changing time.

3.6 Back to Particles

If we look at particles from a prospective that they are bound up in time shells and each time shell has a distinct local uniform gravity density number, we can think of atoms in a different manner. The energy contained in each of the time shells can be vast. The strong force which holds the quarks together can be considered a very dense time zone or localized UGD area created by the particles themselves. The weak forces extending out from the nucleus of atoms can be considered less dense and for some reason decreases outward from the nucleus in discreet layers. If a particle attempts to enter or leave a denser local time zone it will have to gain or lose energy to compensate for the time change when trying to do so.

3.7 How were Barriers Created'

Let us go back to the basic particle once more. Let's say it is a single loop string and it is vibrating and it is at the temperature of the big bang. I am going to make some rather wild assumptions here, and that is for the string to vibrate and simply not fall apart and to not radiate its energy into space it has to have something confining that energy. Here I am going to say that the four forces which are at their highest symmetry are acting together to maintain the string vibration or its energy. Also that the density of the uniform gravity density is near zero at the big bang temperature. I am stating here that the four forces are the glue that holds the vibrating string together and these four forces must remain intact to keep the string's identity no matter what the string's temperature is.

When at the temperature of the big bang the strong force has just as much distance influence that gravity has. Hence the string's vibration covers a huge amount of space in comparison to the vibration we see today in our universe where the string is at an extremely small size. If we put this condition as the condition of the beginning of the universe we can visualize how a particle or atom is formed and why it has different forces in its structure.

Now let's increase the density of the universe's UGD and follow what happens to our original string particle. I'm only using one particle as a reference even though there was a large mix of different particles in the universe to begin with. When the UGD starts to increase, the forces within the particle which hold it together do not react equally. When the decrease in density starts, the strong force reacts drastically to the change of time and rapidly changes to maintain the energy within the vibration. This preserves the particle's identity. But with any change in time or motion there is a change in all forces except gravity because the particle's mass does not change.

Since the particle already exists as a wave, its mass has been predetermined hence there is no real change in gravity other than being condensed to a smaller area or volume. It is still and always will be connected to the entire universe. As the density of the UGD continues to increase and time slows even more, the strong force intensifies around the base particle or vibration which is now shrinking rapidly in size.

All the changes that take place are what we call phase transitions. These changes are for the explicit purpose of preserving all the characteristics of the original particle wave so that when you heat the particle back up it will return to its original beginning symmetry. This is the conservation of energy. The strong force and the weak force are generated for that specific purpose. Without the preservation of this information held within these forces the base particle could not go back to its original form at the temperature of the big bang.

3.8 Particle Identities . . . and what keeps them apart.

Let's make a particle in my laboratory. Let's say I take a proton and make it the size of a marble in my laboratory by using my magic crystal. The actual time difference between the marble-size proton and me is quite large and when there is a difference of time you have a difference of energy and motion. If I were now to approach my marble-size proton and try to enter its surface I would find an extreme amount of resistance. Here the time difference between my lab and the

marble's frame of reference sets the amount of energy necessary for either one of us to impose occupying the same space with the other.

The barriers that hold particles apart are localized time barriers and each have their own private reference frame and each have their own motion and energy. If I were to try and take a particle out of the proton's reference frame its time and motion would have to increase drastically to preserve the conservation of energy that the universe demands when entering or leaving different time zones. So when the particle tries to leave my marble-size proton its UGD has to decrease causing its time and motion to speed up to match my reference frame, in effect releasing energy that had created the denser local UGD in the first place. In other words, to get a particle out of a time zone you must add energy to the particle. The conservation of energy will not permit the movement of particles between time zones without readjusting the proportions between all the existing forces. The dominant forces here are the strong, the weak and the electromagnetic, while gravity is only changed when energy is gained or lost from the system.

This makes the universal UGD a time zone of its own and must itself obey the conservation of energy. Because the localized UGD density is fully compensated for by the forces and energy within the particle itself the universal uniform gravity density is not effected, therefore not causing a curved space region between the particle and the universe. Localized time zones are closed systems and closed systems do not effect gravity.

The electric field and the magnetic field both represent a very strong force compared to gravity. Here I firmly believe that the strong force and the weak force are in fact very extreme time changes in the universal UGD. By saying this I am implying that any object entering one of these localized gravity density fields will experience the gravitational effect. But we know by experiment that a magnetic field, for instance, does not produce the gravitational affect. If this were the case any object placed into a magnetic field of a permanent magnet would be drawn to the polls of that magnet. As it turns out, only objects with similar properties of the magnet are in fact effected by the magnetic field.

If all forces were indeed created from a single force and the strong force and the weak force were created out of the universal UGD to preserve the characteristics of the original particle, then why does this change of local density not effect all particles like the overall universe's uniform gravity density does'

This is a dilemma that I have looked at and thought about for a long time. The thoughts I have here are a conclusion I reached which may be entirely wrong but have some logic to them.

The three major forces were created from a condition of the uniform gravity density. The curvature of gravity is caused by the total sum of the energy within each particle no matter what that energy represents to us. This means that the three forces are integral parts of each and every base particle but do not react the same under density changes of the UGD. Because they do not appear to us in the form of the original particle means nothing to the particle's original mass. That mass strictly conserves the law of the universe which strictly adheres to the conservation of energy. It is this law that precipitates the three basic forces we observe today. The UGD could be considered the energy all particles are made up of.

The original characteristics of the original particle are stored in the three basic forces and when the proper conditions exist will return the particle to its original higher symmetry from which it started from. It is the local UGD that stores this information or energy. All this is tied up in how strings maintain their vibrations. Since all particles degenerate into radiation one can only assume that the original vibrations are electrical and are much like the way light oscillates. There is a magnetic and an electro-static field which are held together by the forces created between them thus producing a positive and negative oscillation. So what is happening when we take a huge vibration that spans the universe and shrink it to the size of a string? This in effect condenses energy. It does not increase energy so it does not change gravity. It simply takes an energy that is spread through a huge volume and puts that same energy into a much smaller volume.

To do this without changing gravity these different energies must be symmetrical. They

must produce a positive and negative condition in time which cancels out the overall effect of the universal UGD thus remaining neutral to the UGD as a whole. Thus the time barriers are not an outward force but looped forces in which the time arrows or the time difference in the UGD are in a path around or within the particle. If this looped path is a magnetic field then the time difference would be either from the positive to the negative or negative to the positive but would not be radiated. But then one could say that if I placed a non-magnetic object in that field it should migrate to one of the magnetic poles but this does not happen. This does not happen because the object is only experiencing one-half of the time distortion. For gravity to be effected and cause a time difference that causes motion, that object must see an asymmetrical time change. Furthermore, the three forces only produce an asymmetrical time change as a whole. A magnetic field has two properties. One is the lines of force between the north and the south pole of the magnet, and the second is the field at right angles to those lines of force. Hence a magnetic field is split. Any non-magnetic material placed in the magnetic field will only experience half of that field. If another object can produce the other half of the time distortion (such as another magnet or a material that can produce a magnetic field) it will align itself with the time distortion. It also will align itself in the opposite polarity mimicking the other half of the distortion, thus producing a localized gravitational affect which we call magnetism.

Yes, a magnetic field is a very intense localized gravitational distortion or time distortion in the universal UGD. It in effect is a time shell, although a weak one. The time shells of atoms are energy shells and any time you enter or leave a time shell the forces that drive the object doing so must be sufficient to overcome the local shell. These corrections take energy and if there is insufficient energy in the movement of the object against a shell the object will run against the time shell it is trying to enter and will not be able to penetrate it. Hence we get what we call solid matter which gives us the ability to push against things.

These time zones which keep particles apart create a host of other interesting phenomena. These are the ability for atoms to form and for these atoms to form molecules and these molecules to form structures. These time zones produce the magnetism and the electromagnetic energy fields we use in our everyday life.

When atoms are connected to atoms they appear to be connected by the electrons. But in reality it is not the electrons themselves that are the binding force that holds atoms together. It is the intermixing of time shells that surround each atom which is causing the actual binding force. The electron interchange occurs only because they are moving in the same time shells of each atom giving the appearance that it is the electron doing the binding. To separate atoms you must overcome the energy of the time shell to break the atoms apart. In other words, you must change the UGD or neutralize the time between the two atoms. To do this you must give energy to the atoms themselves or raise their temperature or speed up their time.

A quark cannot be removed from the proton's gluons because the gluons are part of the quark. The gluons are the necessary energy held by the vibration that it has to have to return the quark to its original symmetry. It is what is maintaining the particle's original energy. When you try to remove the quark the gluons merge back into the vibration and simply form the original quark pair that the quark came from. The strong force is a very dense structured time zone loop.

3.9 Magnetism and the Magnetic Field

This may seem like a stupid question to those who read this article and find it interesting, but have you ever wondered what the magnetic field is and why it exists?

The electron has an electric field associated with it. But when these electrons are not in motion, not considering the motion of the electron around the nucleus at this moment, they simply have an electric charge. Free electrons in a conductor do not produce a magnetic field around the conductor unless the conductor is within a circuit and the electrons are forced through the conductor.

In a circuit the electrons must move from one atom to another atom and in the process of

doing this the electron must enter a time shell of one atom then leave that time shell and then enter another one in order to travel along the conductor. An electron has its own electric field or time zone but this electric field is canceled by the proton when the electron is in the atom's time shell.

This process means that the electric field or the local UGD field associated with the electron must change its energy level in order to compensate for the time difference when changing time zones. This has to happen in order to preserve the conservation of energy. Here motion changes time.

Let's again use my magic crystal in my lab to try and illustrate this. If I call my magic crystal an atom and make it the size of a basketball and then connect many of the basketballs together forming a chain which represents a conductor in a circuit, we can visualize what might be happening to the electron.

Now let us move the electrons along the conductor. For the electrons in the atom's shell to move to the next atom they must leave the atom's outer shell and enter into my laboratory and then back into the next atom in line. When the electron is in the atom itself the electron's properties or mixture of its force properties are different than they are outside the atom's time shells. So when the electron leaves an atom's time shell and enters my reference frame it corrects its force properties accordingly, or to a higher time and motion condition, thus expanding its own local UGD energy shell. This is only a momentary expansion but we see it as a magnetic effect because we are forcibly changing the electric field of the particle. So what we get is a time fluctuation in the local UGD. This fluctuation is using the universal UGD but it is constrained to a loop. The electron's movement is not only changing the electric field of the electron it is also changing the electric field of the atom when it moves in and out of a time zone. The energy I applied to the system is converted to the generation of the magnetic field which is a local time zone field and when these fields change they can convey energy.

Because there are literally thousands or millions of these events occurring simultaneously we see the effect as a continuous field. The lines of force we observe are merely the accumulation effect of the multitudes of individual electrons changing time zones for each electron will produce its own individual line of force.

Now what about a permanent magnet? Permanent magnet fields occur in only certain types of material called ferric materials, such as iron. They also are conductive. It is the crystalline structure of these materials that maintain atoms in alignment to form the magnetic field. If it was not for this the individual atoms within the material would be in random alignment and the total effect of the magnetic field would not be observed. The structure of the basic material is so that the outer electrons of its atoms cross time shell barriers creating individual monopole magnets. When these atoms are aligned properly in one direction then the external magnetic field can be observed and measured.

It is either the electron's orbital characteristics or the sharing of electrons between atoms that bring the electron in and out of the time shell domains which produce the magnetic effect or time energy shell. The magnetic effect is not radiated away because energy is neither gained nor lost thus producing a steady state condition. The magnetic field we observe turns out to be part of the electron's balancing act between forces. The only way magnetic energy can be radiated or separated from an atom is when that energy is excess energy or energy that was added to the system from some outside source. The basic particle energy will always remain with the basic particle.

The plus and minus effect of a magnet is due to the localized UGD time variation along the lines of force. In a sense the magnetic field itself is a time domain structure which is sufficiently strong to effect other local UGD in the vicinity of the field, providing the other structure's local UGD has a similar time zone characteristic. The time difference between the plus and minus is quite strong compared to the time difference of the entire object to another object. The force of gravity completely disregards a local time zone configuration. Because these local time zones exhibit a perfectly balanced condition they cancel out the effect on the universal uniform gravity density.

A magnetic needle like that of a compass will align itself with the magnetic lines of force because the time lines of each of the magnets produce the necessary other half of the time gradient needed to produce the gravitational time migration that produces the motion generated between two magnets.

3.10 Conclusion

Since all particles carry time shell barriers it means you must expend energy to cross them and that is why matter appears solid even though we know there are huge amounts of space between the inner portions of atoms and particles. It is why we do not fall through the earth or why heat is necessary to bring atoms together and form molecules. The only way you can enter a time zone like the strong force is by taking that force back to the particle's original symmetry and to do that you must expend energy. This is why atom smashers were built. They accelerate particles at high velocities arming them with sufficient energy to penetrate deep into the atom. This energy is needed to penetrate time shells to release the particles held inside.

These time shells were created for the explicit purpose of preserving the original particle's configuration and energy. This was all set forth by everything in the universe having to conform to the laws of conservation of energy.

The quarks inside a proton are the vibrating nuggets of the proton and they hold the strong force which was created for the purpose of preserving the original quark. The nuggets and the strong force are one and the same thing. You cannot separate quarks from the strong force that holds it. The weak force is also part of the quark and gravity is a combination of the three forces and cannot be separated any more than the strong force can be separated from the little vibrating nugget we call the quark. All this goes back to the string's symmetry condition at the temperature of the big bang.

4 Gravity and Motion

How does gravity produce motion? What is in the nature of gravity that makes an object move? As I have explained earlier, the motion of an object towards a gravitational distortion is caused by the time difference across the object, thus the object simply migrates in that direction because of the conservation of energy. I have equated this to the difference in air pressure in a room causing a balloon to rise to the ceiling and stay there. But how does gravity or the difference in time in the universal UGD get the energy to create the motion that brings objects together? It is simple to reason how the difference in air pressure from the bottom of a room to the top of the room causes the balloon to rise. However it is quite different to reason how a difference of time between two points of space causes an object to move because time is not a pressure. From the earlier particle discussion, any difference in time between any two points of space represents a difference of energy, not necessarily a difference in gravity. Any object's motion that is different than ours represents useable energy and can be used to do work. When two objects are totally in the same reference frame and have no motion relative to each other no useful work can be done.

Particles should be thought of in their entirety. We have always considered the solid part of a particle the particle's size but we should not look at it that way. The particle's size should be governed and measured by the total particle's influence which means it should include all the fields associated with the solid part we are familiar with. A graviton influences the universe therefore that particle's size should be as big as the universe.

I believe this motion, caused by gravity, is produced by the conservation of energy which is the basic law of the universe. To explain how this works I am going to create a fictional universe. In this universe I am going to make space flat, meaning that it has no distortions and any objects moving in this universe will have a constant velocity measured by time over distance. This velocity of motion strictly adheres to the conservation of energy. Any change in motion or time will effectively try and change the object's energy.

Time. I have been somewhat intermixing two meanings of time. One is the time we use to tell time or the clock on the wall. This is an interval we have determined in our reference frame and it is based on the back and forth movement of objects in the earth's gravitational reference frame. The second one is the change of the back and forth motion when mass is put into motion or in a gravitational field. In the structure of mass, when time changes the motion of that mass changes both internally and externally. This means that time is acting as a force. In this respect time becomes something more than just an interval between events that we use in our daily life. In our reference frame time and motion are not constant but the speed of light is used as a constant in order to provide a basis for our reference frame.

In this example I have an object moving in the universe at a constant rate of speed and the universe says it must obey its law of energy.

Now I introduce a mass into this universe which distorts the flatness of space. I now make my object that is moving through the universe pass very close to this mass. When my moving object enters this space distortion my moving object says to the universe, "For some reason my time is slowing down."

But the universe says, "You cannot change your time because it will change your energy. You must maintain the velocity you have and cover the same distance you have been covering to maintain a fixed energy."

But the object says to the universe, "I have no choice. I cannot do that because my time is slowing and therefore I am covering a longer distance over the same period of time because my clock is running slower. Therefore if changing time is against the law and my time is changing, then I must change something else to maintain a constant energy."

The universe says you only have one option since energy is fixed and you cannot help changing your time; you must compensate by changing your motion which will give you back the energy you're losing.

So my object says, "Thank you, universe, for telling me how to obey the law and keep my energy constant, I therefore will increase my motion."

So my object increases its velocity to compensate for the slower time to maintain a constant energy. Thus my object speeds up its velocity which appears to us as an acceleration towards the mass that is distorting the space which my object is passing.

Here you could say that the universe works on a different time frame than the time frame we have developed in our world. To the universe a massive object increases the local density of space. The universe sees this higher density area as just a larger expansion of the universe in which an object has to travel through and for the object to do this and maintain a constant energy it has to change its motion. This change of motion gives the object either more or less energy by compensating for the energy it gains or loses when time slows or speeds up. Hence the motion we see caused by gravity is simply the conservation of momentum based on energy being a constant. When you attempt to change energy, time and motion change accordingly. Which one makes the change depends on the circumstances and conditions in which the object is subjected.

What happens when my object hits a solid surface and can no longer increase its motion? At the surface of the solid object my object cannot increase its motion so the time across it is held constant therefore there is a difference of energy which is not allowed and since it can no longer accelerate nor change its time to compensate, that energy is put into attempted motion. This attempted motion is what we experience as the force which holds us to the ground.

In a gravitational field energy is neither gained nor lost. It is in our reference frame that gravity produces the gain or loss of energy, not the universe's reference frame. When objects change in position with reference to us they are signifying that the universe's reference frame is different than ours in that the universe always sees space as uniform. It is our reference that brings about the different motions and times we experience. In a broader sense this means that the entire universe is actually responding to all the individual motions within it. It is in reality the equal and opposite reaction force that produces all motion. This may seem a bit much to swallow but when you think about it, it is hard to believe that if you lift one atom off the surface

of the earth the entire earth actually responds to that motion.

But what did my object push against to increase its velocity? Believe it or not it pushed against the universe.

4.1 Particle Duality

Particles have the uncanny nature of presenting themselves as either particles or waves, and for some reason particles can turn into waves and back again. Is this possible? Is a particle a wave in disguise? Is a wave a particle in disguise?

Physicists work mostly with particles and they believe that all forces are caused by force bearing particles. Could they be right? As I have mentioned earlier, I have a great deal of trouble understanding how a force like gravity could be carried by a particle so I am going to give you a look at a strange phenomenon which comes out of my interpretation of the conservation of energy.

There are basically two modes of operation when we deal with energy. One is radiation which moves at the speed of light and the second is the movement of mass which is very slow. You could say that mass and radiation are at the extreme opposite ends of each other. You either move slowly or you move at the speed of light.

When energy is released as radiation it is moving at the speed of light and you might ask why. In my explanation of radiation I said that it is produced by particles wanting to return to their higher symmetries and to do this the four forces realign themselves to become more equal. But because particles are restricted by the UGD the particles cannot reach or obtain their original symmetry.

So what happens to a particle if the balance between all its forces cannot follow each other properly? Since a particle cannot adjust its energy it must adjust either time or motion. When we consider a wave traveling at the speed of light, we consider its time to be zero, so if its time is zero, its velocity is maximum to maintain a constant energy. If this is the case, then the local time distortion of a particle is tremendously expanded because the particle is trying to reach its original symmetry. This action produces, in our reference frame, a wave function which in fact is a particle distorted and moving at the speed of light. We see this as radiation.

This means that radiation is made up of particles. The electromagnetic wave is a local time condition and if its internal forces were readjusted to a proper balance and it has enough energy the electromagnetic wave would be seen by us as a particle. Particle forms depend on your observation which depends on your reference frame.

Hence a particle can turn into a wave which moves at the speed of light and then when the proper conditions exist the wave can return to a particle.

This effect does not have to occur from near zero motion to the speed of light but can be seen when we accelerate particles in our laboratories. Because we are accelerating them we are in effect causing the particles' forces to readjust and this adjustment is made between time and motion which revolve around the local UGD of the particles. The faster we accelerate a particle the greater the time shell expansion, the more a particle appears as a wave.

In the process of generating photons we are taking a particle of energy from an atom and turning it into a wave, then recapturing that energy. This makes a photon some sort of a sub-particle which would be a particle in its wave form because it would not have enough energy to be seen by us as a solid particle in our reference frame. So radiation really is particles or vibrations that never quite made it to particle status but act as an energy transfer medium. When an atom creates a photon or a burst of radiation, that radiation, when striking another atom, is sufficient to reproduce the original photon of energy within the other atom. In this case photons are sub-particles inside the atom. They are identical but observed in two different states.

The photon would not be the only sub-particle to produce these characteristics. In all fairness, all radiation at any frequency or energy is in fact made up of sub-particles and appears to us as radiation because radiation is at one end of an extreme condition of time and motion.

So in effect when the universe cooled from the big bang temperature not all particles formed solid mass while many remained as radiation. But if you go back to the big bang temperature all particles are radiation in disguise because all particles were formed from vibrations of energy in the first place, in our reference frame that is. One would also have to say that at the big bang temperature all particles were vibrating waves moving at the speed of light.

4.2 Particles and Force Bearing Particles

Here you can see that there must have been a very large mixture of particles in existence in the universe when it was at the temperature of the big bang. Each different particle or vibration had different amounts of energy. A particle's energy is dependent upon the frequency of vibration of each particle. These particles would be the basic particles that would eventually make up the large combination of particles we see today.

As the UGD increased many of these particles came together making what we call solid matter, but many of these particles did not have sufficient energy to do this so they existed as radiation. But then there is the mix of particles that fall between the two extremes and can intermix with large radiation particles and small solid particles.

If you move from radio frequency emissions to radar frequency emissions and on to light frequencies into gamma rays you will find that the energy being concentrated in this radiation is almost at the point of becoming a particle as you go beyond gamma rays. What this says is that it takes a vast amount of energy contained in the higher frequency vibration to eventually form a solid particle. What becomes interesting here is that when the solid particle forms it is not made up of a single particle vibration but literally many vibrations all working together to form the overall particle that we observe.

This means that there are low-frequency particles mixed in with high-frequency particles and it is the combination of these mixtures which form the different characteristics of our present universe. It is why when we bombard mass in our accelerators we produce a wide variety of extraneous particles.

The universe is a dynamic entity and our place in the universe puts everything in our view as relative. Einstein's theory of relativity is far more reaching than we could ever have imagined.

Now what does all of this have to do with gravity and the force conveying particle called the graviton? I have never been able to understand how this particle can transfer information of the existence of mass in one place of the universe to another and how it could possibly manipulate and maintain this energy interchange in order to keep everything in its proper order.

Well, looking at particles as waves with expanded fields gave me some second thoughts. These are that I have been looking at the force particles as a small individual little entity going back and forth between particles and curving space causing gravity. This is like two people throwing a ball back and forth and the ball transferring the force information between them but they never say how the ball changes space between the two people. If a graviton is a particle and that particle interacts with every particle in the universe then the graviton is not a little particle conveying the force information. The graviton in this case is not a little particle at all but a huge particle which encompasses the entire universe and the Higgs particle is the focal point of the graviton, therefore the graviton becomes the distortion.

This makes the graviton particle consistent with my way of thinking. If the graviton is in fact a particle as big as the universe then I fully can imagine how its influence could effect the entire universe for it does not have to travel back and forth between all other particles.

This would also be true for the force bearing particles of the other forces but in their case they have a limited influence because of the characteristics of their vibration. It is believed the lowest vibration of the string is in fact what causes the gravitational influence or distortion of space-time. The mass of a particle is associated with the Higgs particle. So if you think of particles as waves, and in some cases the particles are not little tiny things but are huge vibrations held together at some focal point, I can see why scientists can refer to forces as particles. It is just not quite the particle I originally envisioned. If you get your mind away from categorizing particles

as little single entities and into the fact that they are made up of literally hundreds of different vibration entities, and some of those entities are huge in nature, you can draw a much better understanding of how some of these forces work throughout the universe.

All this implies that each and every particle has something holding that particle's vibration together. I mentioned that the four forces do that job, and they might, but there also appears to be some internal focal point which each particle revolves around and keeps the particle in a coherent form. And this little nugget or focal point is in all particles no matter how small or large and if this focal point is put into motion the entire particle is put into motion.

This also means that the universe is filled with huge numbers of particles in radiation form thus creating a radiation density level throughout the universe. It is this density level that creates the phenomenon we call the vacuum pressure. But space contains more than the radiation influence; it also contains pure energy which can be related to the universal gravity density which also has an influence over what matter does and how it is formed and it is apparent it is the guiding light creating the conservation of energy laws.

Does gravity influence the entire universe'

When the universal gravity density was increasing, the distance influence of the three major forces decreased. So it is conceivable that the particle creating the gravity distortion also decreased to a certain extent. This would mean that the gravity influence over mass does not cover the entire universe but does in fact have some limitations. It is only assumed by physicists that gravity is completely universal in nature when in fact there is no proof of that. If this was true it would bring a whole host of new thoughts and a multitude of scenarios about our universe's makeup.

4.3 Thoughts Only

I am not yet convinced that the field associated with the graviton's movement is subject to the speed of light. I say this because, and you might find this a little far out, it is quite possible that radiation does not have mass. It is not specifically said that mass and energy are the same thing but only in that they are equivalent and therefore act as the same thing. In my explanation of gravity a ray of light can be bent by a gravitational field simply because of the varying time across that field. This means light does not have to have gravity to be bent. We bend light every day with lenses and lenses do not have a gravitational field sufficiently strong to do that job.

This implies that the vibration that creates mass within a particle is subdued when certain energies within the particles are converted to radiation particles which travel at the speed of light. When this radiation is captured by other particles that particular mass vibration re-emerges and mass re-appears. We do know that light produces a force on objects and that light can be used to accelerate things. This all goes back to the equal and opposite reaction force which is usually thought of as mass pushing against mass, but in fact it is energy changing states or from a slower time to a faster time that is causing the effect. When energy is released, time always speeds up and objects always move from a faster time to a slower time area. This would be the true force that moves objects.

In this case when mass is converted to radiation energy at the surface of the sun, the mass of the sun is diminished at that instant, not in the eight or nine minutes later when that radiation passes the earth. It has been calculated by many that if the gravitational wave is traveling from the sun to the earth at the speed of light the travel time would introduce a delaying property which would cause the earth, over time, to lose its gravitational connection to the sun and fly off into space. In this circumstance one could only assume the gravitational wave travels faster than the speed of light.

It is quite apparent that all particles with mass have basic structures which must include the string vibration that brings about a spatial distortion. This becomes obvious when you separate out particles from particles in that the new particles carry with them a certain amount of mass. This means that the vibration that creates mass is retained no matter how many times you split

the particle up. Therefore that portion of the particle's structure is inherent with all particles and it is a basic characteristic of mass. Particles could not exist without that particular set of vibrations. It does not preclude that the vibration is incapable of changing form.

If you have radiation in a pure sine wave form, and you observed this radiation with a spectrum analyzer which displays frequency over time, you will see that the sine wave has a single frequency. But if you were to go from a perfect sine wave to a non-perfect wave at that frequency, let's say a square wave pulse, and observed this pulse on your spectrum analyzer, you would find that the pulse contained hundreds, if not thousands, of other frequencies spread out between the fundamental frequency of the pulse. The number of frequencies displayed depends on the rise and fall time of the pulse.

If we use this analogy and equate it to the big bang temperature particle and to a solid particle, of our reference frame, we could say that the big bang temperature particle was a perfect sine wave and that the solid particle or mass is much like a square wave pulse. This would mean that a particle in our reference frame contains a host or multitude of different vibrations in its makeup. The fundamental vibrations constituted the particle's mass and each of the vibrations if separated out would constitute a separate particle in our reference frame but still maintain the fundamental frequency or its mass. As more and more particles are separated out from the main particle the main particle becomes purer and will move more toward a purer sine wave function changing its overall characteristics and stability.

Reference frames become an extremely important part of our observation of the universe and must be included in our thoughts to fully understand what our universe is doing to our observations. If we could travel with a light wave and still maintain our own time frame, the light wave would look like a magnetic field and not be traveling at the speed of light and you could not determine its true energy content because we determine energy by relative motion.

The time frame at the big bang.

If there was a big bang as claimed and everything at that time was moving at the speed of light then time in our reference frame would be near zero. Therefore, that event would essentially last for billions of years in the universe's reference frame but only a split second in our present reference frame. If you tie time to something, you best do it with the proper reference frame.

4.4 The Big Bang Alternative

I have read many articles on how the universe was created that disagree with the big bang theory. The traditional thinking on how the universe was formed is based on the theory of relativity and information gained from the phenomenon called the red shift. The observation of stars and galaxies have shown that the universe is expanding in all directions and in some cases expanding faster than it should be based on the amount of mass in our visible universe. The red shift from the light given off by far away stars tells us this. It says that the stars and galaxies are moving away from us in all directions and since the big bang was an explosion at the center of the universe it is a logical conclusion that an explosion caused this effect. Many believe this explosion did indeed happen but many believe it did not.

Could all of this have happened in some other way since there are many questions left unanswered? Does the breaking up of the 10 dimensions cause heat and form strings and create matter? No one knows. What are the 10 dimensions? No one knows. How did all of the mass in our universe come into existence from a single infinitely small point in space? No one knows. In some ways all of this does not seem logical and there are many articles written by physicists that say this scenario of the big bang is incorrect and that the universe is expanding but not in the way prescribed by the big bang theory. Most of these theories have trouble explaining the curvature of space between stars and galaxies caused by the presence of mass. Other theories believe there is nothing in the space between our stars and galaxies and give no explanation of what curved space time is other than space time curving is what causes gravity.

So what could explain what we see in our universe and yet have some logic to the explanation and not use the big bang scenario that is now prevalent in physics'

Here I'm going to give you such a scenario. This idea is a continuation of thoughts from the beginning Section of my article and seems to have some logical sense. To me that is. Explaining the universe in this way was not my intention to begin with but it just happened to fall in place using the train of logic I have adopted. I hope you'll find it interesting and thought provoking but if you take it to heart and believe every word, I have a bridge I would like to sell you.

Going back to the magic crystal I used as an experiment in my laboratory in Section 2 and the discussion of heat in Section 3 we can build a universe the same way the big bang produced the universe but completely from a different beginning. First of all, at the beginning of the big bang everything was at an extremely high temperature and then cooled off to form mass as we know it. But why did it have to happen in a split second and where did this extreme quantity of superstring particles come from? It is not so obvious but could it be that a high temperature superstring soup existed in its entirety before this universe we see today came along? You could say that the universe at the big bang temperature was really in its natural state and it is our current universe that is not in its natural state.

If I take my magic crystal, the one I can vary the density of and the one that has the solar system tucked inside, and with my control lessen the density of the UGD to almost zero, I would find that the solar system inside would expand to a point where it would no longer be visible because it would come apart and dissolve into its basic particles or strings. Because of my reference frame it would have a temperature close to that of the beginning of the big bang. As I have explained earlier, when we lessen the density of the uniform gravity density we are effectively increasing the temperature and speeding up time.

This effectively says that the universe's natural condition was a soup of vibrating string particles that filled the entire universe. Because strings are vibrating these strings carry energy and each occupies a huge portion of the universe. So each and every string in our universe, if we consider the string a basic particle, existed before the creation of our present universe. The universe must have looked like some dense fog, or possibly one huge particle, if one could have observed it.

I am going to call this universe the standard universe and a standard universe is what our present universe was created from. It is huge and stuffed with vibrating particles that are all vibrating at the speed of light. Let's assume here that each particle is a basic string and there are a certain number or types of these basic strings and that the strings are held together by the four basic forces which are held together for some reason around some focal point. The four forces are essentially of equal strength. This implies that their influence is equal throughout the universe.

This is the condition in which our universe started. It did not start from an infinitely small point in space and expand outward. It simply existed making the time component of the big bang theory misleading. In the big bang, cooling is related to an expansion into space when in fact, in my case, it is related to an increasing density of the uniform gravity density or a contraction of space and slowing of time. When time runs fast to us it makes things appear to happen in a hurry which is misleading. At the temperature of the big bang, to us things would appear to be happening quite fast when in fact they are not. This is a reference frame problem.

Now when the uniform gravity density shifts to a denser condition it causes time and motion to slow, thus increasing the energy density of particles because of the way the four forces act.

Of the four forces, the strong force apparently is more sensitive to the density change and rapidly contracts as the UGD gets slightly denser. The contraction forms a localized UGD time shell which is the basis of the particles we see today. Hence the strong force started huge and rapidly collapsed to a condensed form.

At this time the strong force plays the most dominant role in the creation of our existing particles. This barrier or energy time shell is the particle's energy link back to its original symmetry if it was again heated up to the big bang temperature by lessening UGD. But as the density of the UGD increases the strong force's distance influence over other particles rapidly decreases. At the same time the shell of the electro-weak force starts to gain prominence. Here the distance influence of the weak force still greatly exceeds that of the strong force but as the

density increases it also is shrinking.

If we stop this process just after the beginning of the increasing density or the lessening of temperature we see that the strong force has shrunk drastically. The weak forces have shrunk in proportion to the strong force and gravity or the final time shell has barely shrunk at all and still maintains its hold on the entire universe. Now at this time all these forces are still exerting their influence on a vast amount of space and since this action did not happen instantaneously as the big bang predicts but over a long period of time, the individual particles had time to intermix and form larger particles. This is probably where the strings formed quarks and other basic particles. The strong force at this time was much like the weak force and had polarities and characteristics which attracted or repelled other particles but eventually stable groups of particles produced our basic building block particles we see today. The protons, neutrons and electrons which are the workhorses of our existence were the outcome of a slow and tedious process.

With more increase in density the strong force's distance influence quickly diminished to an extremely small area. With time continuously slowing and temperature dropping the time shells intensified making it impossible or almost impossible for other particles to penetrate their existence. As discussed earlier, time shells are energy shells and energy must be changed to penetrate them.

At this point the universe has now shrunk into a mix of the basic particles we see today. Further increase in the UGD and the now more prevalent strong and weak electrical forces brought the protons, neutrons and electrons together forming our basic atoms. Because it takes energy to breach time shells, either in or out of them, these particles were locked together. Somewhere in this chain of events the weak forces ran out of steam and influence over large distances hence the atom became independent and stable. The tighter the time shells the more stable the atom.

The next force that dominated the scene was that of gravity and its influence started to gain dominance as the particles came together forming larger quantities of mass. For particles to form into the stuff we see today there must be a combination of different vibrations. These combinations must contain all the necessary characteristics of vibrations to remain stable.

At this time the individual particles and atoms did not have sufficient energy to produce larger structures. So the universe was filled with a host of light particles and basic atoms and of course a host of others particles, although they were not in the dominance. Here the strong and weak forces no longer controlled the vast amount of space they used to and were confined to their local environment. From here on atoms were brought together by gravity forming large masses thus forcing the light atoms even closer together forming the heavier atoms that we see in our periodic table. These intense gravitational fields gave the individual particles and atoms sufficient energy to breach time shells.

Before the neutron star category of stellar bodies were created in the universe the universe had bound together many atoms forming large molecules. Now the strong gravity seen in these massive stellar bodies started the process of destroying these bonds. This tearing up of atoms by this action released energy back into the universe.

All this of course did not happen in some big crunch but happened throughout the universe in multiple areas. Each of these areas had its own localized big crunch which created the lumpiness we see in space today. Here the big crunch was not a universal big crunch but many localized ones. The radiation released by this action is mostly in the form of heat which causes the lessening of the UGD which in turn stops the big crunch because the big crunch is caused by an increase in the UGD.

If we use our own galaxy as a single entity among billions in the universe as a demonstration you might get a better picture of what I am trying to say. If our galaxy were to cool down and shrink its gravitational field would intensify. But because there is a huge amount of energy stored in the makeup of all the particles in the galaxy this energy would be released under the gravitational crunch thus decreasing the UGD. When radiation is released it speeds up time. This process by itself stops the collapse.

Thus our galaxy would stop its contraction and re-expand. Because there is a delay time in this process you would get an overshoot. The galaxy would go beyond the shrink point and then start to reemerge but because of the excess of heat produced in the overshoot the galaxy would appear to be increasing its rate of expansion as if there was some other force outside the galaxy drawing it to that source. Eventually the production of heat caused by the crunch will subside and the galaxy will again start to collapse as gravity once more takes command. You could call this overall effect ringing, much like a bell will ring after being struck by a hammer. The intensity of the ring will slowly decrease over time. It is quite possible that each galaxy or star cluster throughout the universe goes through this process.

This process of expanding and contracting could very easily account for the thorough mixing throughout our galaxy of the heavier atoms and molecules which we find in places like the earth that could not have produced these particular elements.

If we equate this contraction and expansion to the entire universe and are able to observe it over an extremely long period of time our observations would show the universe and all of its parts coming closer together when the universe was cooling and moving away from each other when the universe was heating. Each individual galaxy or clusters could be considered local events and are affected by the overall UGD. When we observed a lessening of a universal UGD we would see a blue shift in the light we saw coming from the distant stars. When the universe re-expanded we would see a red shift in the stars' light. In between the two extremes you would get an extended period of acceleration in either direction due to the over shot of the oscillation.

For a period of time in the expansion mode or contraction mode one would observe a condition which would not match the gravity calculations we use to determine if the universe is expanding or contracting. For instance, in an expansion cycle the outward acceleration would exceed gravity's ability to stop the expansion. Here we would assume that the universe is expanding at an accelerating rate as if a counter reacting force against gravity is pushing the stars outward. In fact this is exactly the case but the counter reacting force of gravity or anti-gravity is caused by the heating or lessening of the universal UGD. But this action will cease as soon as the production of heat was spent and again the universe will be under the control of gravity once more and again start condensing and shrinking through another cycle.

If this is the case we could say that we find ourselves existing in the portion of the universal cycle that is expanding after its most recent contraction and has not yet overcome the excess heat of that contraction.

This process does not require the creation of a hidden force of anti-gravity or the creation of dark matter or dark energy or some unknown and obscure particles to create the effects we see in our universe. If neutrinos have mass and are evenly spaced throughout the universe they will have no visible effect on the motion of interstellar bodies. I find it nearly impossible for something in space to exist that effects gravity but effects nothing else. If something effects gravity it will have an effect on everything that gravity effects.

4.5 Spiral Galaxies

I have mentioned earlier that the stars in a spiral galaxy do not move in accordance with our basic laws of gravity and I have hinted that because of our observations of those galaxies, which may reside in a uniform gravity density denser than ours, we will not get proper information because these galaxies are millions and billions of light-years away in our past. Under the big bang theory they should be in a more dense UGD. But how would this idea work in the scenario of the universe that I just gave? If the galaxy we are observing in our long past did not emerge from a single point, then the uniform gravity density of those galaxies will be more like our own galaxy and we should not be seeing the incorrect star rotation of these spiral galaxies. So now what would cause this effect?

If you took any spiral galaxy, or at least the ones you could see the spiral arms of, and measured the temperature of that galaxy starting from the center outward, you could determine the galaxy's temperature profile. This profile would show that the center part of the galaxy is

extremely hot and the temperature decreases from the center outward to the spiral arms. This means that the inner portion of the galaxy has a less dense UGD thus causing faster time and slower motion of the stars in that area. This effectively gives us the picture that all the stars are moving somewhat at the same speed and not obeying the laws of gravity. Most of this would be an observational distortion caused by time, much like the distortions you would see in my magic crystal.

In the larger universe heat could play a very dominant role in our observations because it does change time and motion.

How long did our universe take to mature? Creation of our universe from the standard universe did not have to happen in a split second but in fact could have taken billions if not hundreds of billions of years. For the universe to create the original atoms and particles by bringing together stray and wayward particles took a vast amount of time. Particles were actually bound together slowly as the UGD slowly increased giving ample time for our basic particles to form before the three forces lost their influence over large amounts of space. We can get some time referencing by just observing the present expansion time of the universe. Again, time depends on your reference frame.

4.6 One Sided Gravity

Below are some wild thoughts that have occurred to me on occasions and are used to spur my imagination.

There are three major forces that make up our particles and it can be shown that they are manifestations of the same force but gravity has not yet been linked to these three forces. The three major forces are also local forces. They each have a plus and minus characteristic which produces a balanced energy field much like a magnet has two poles. But gravity is distinctively different in that it does not have an opposite side, at least one we have not yet detected. Or is it there and we have not realized what it is?

If gravity is caused by the vibration of a string, it therefore should have an opposite side. All radiation waves or light waves have a plus and minus characteristic and so do the three forces. Therefore where is the other half of gravity? Logic says there should be one. The other question one would ask is, what causes the uniform gravity density to increase or decrease?

These are questions I have asked myself for a longtime and the answers I have come up with should only be taken lightly and with a great deal of imagination. Einstein asked himself, what would a light wave look like if one could travel with it and observe its action? He discovered later that this would be impossible because one cannot observe the light waves in this fashion due to the slowing of time of the observer. The observer will always see a light wave traveling at the speed of light no matter how fast the observer himself is traveling.

For the moment let's say that our reference frame does not change when we increase our velocity so that when we try and observe a light wave our time does not change. So when we observe the light wave as we travel with it what will we see? For all practical purposes the only thing you're going to see is a steady-state magnetic field not much different from the field of a permanent magnet or what we see in a standing wave. We would have no conception that this magnetic field is traveling at the speed of light.

So what does this have to do with gravity? I have mentioned earlier that it is possible that a gravitational wave does not travel with an energy wave or radiation, and that when mass is converted to energy that energy no longer effects the universe's gravity distortion. Because gravity ties the universe together it does not seem logical that gravity could do this if its effect was only transmitted at the speed of light. In this respect I believe that gravity does not propagate or distort space in the same way that the local distortions of time does. For this thought I'm going to assume that a gravitational wave distortion propagates at the square of the speed of light or greater. This makes the universe as far as a gravitational wave is concerned a lot smaller and the action of the gravitational vibration more encompassing.

To envision this let's say our entire universe is nothing more than an energy fluctuation

much like a wave of light. And let's place our entire universe inside the positive half of this fluctuation and let's place an alternate universe in the negative half of this fluctuation. Now let's say that the fluctuation is held together by the special distortion we call gravity. So anytime a disturbance or a correction of the spatial distortion occurs on one side it is balanced out by an action on the other side.

This would keep the conservation of energy in its proper order for we know that the three forces maintain a balance in our energy system and are always fully compensated. In our case, with time and motion, it is logical to believe that the gravitational time distortion obeys the laws of conservation of energy just as the other forces do. We should not try and dream up obscure forces or dimensions to account for our lack of understanding.

In this particular scenario it places our universe in one-half of one oscillation or vibration. This means that the amplitude of the vibration has some bearing on the makeup of the universal gravity density and would mean that the density of the UGD would vary depending on where we stood within that energy crest. If our universe is riding within an energy wave through some unknown space, then I could imagine why we only see one-half of the gravitational distortion. To us this is a one-sided force but to the universe it is merely one-half of one oscillation wave in which the conservation of energy still dominates. This means the speed of light is merely a local phenomenon.

This is the only way, so far, that I can see why gravity acts differently compared to the other three forces. If the lowest string vibration accounts for gravity and the propagation rate of gravity is at the square of the speed of light or greater, then that low-frequency oscillation of the string would have a huge wavelength. Not only that, it is quite possible that the wavelength of an oscillation in the universal gravity density might vary in proportion to the density itself very much like the velocity of an object entering or leaving a gravitational distortion. This also means that all bodies or particles containing mass are indeed vibrating but these vibrations are not observed in our reference frame. If this effect would have anything to do with why the planets in our solar system are spaced at proportional distances from the sun I do not know. But there is a great deal we do not know and it is only our imagination and hard scientific work that may bring us that knowledge.

It is hard to imagine how a small gravitational particle can effect the entire universe but the particle we think of as gravity is not little at all in the eyes of the universe. The universe does not see these distortions that have been created by the increase of the UGD because the universe always sees itself as flat. By the universe's reference frame energy is always a constant. It is in our reference frame that there is a focal point of those distortions.

Another thought here is that when particles were created by the shrinkage of the three basic forces the fourth force, or the gravity particle, also shrank in this process. This implies that gravity does not have full control over the entire universe but does have limits. There is no proof that gravity does effect the entire universe as a whole.

4.7 Conclusion

Throughout the history of earth there have been thousands of theories about gravity, and if not thousands, hundreds of thousands of experiments created by scientists and laymen alike. And up until now no one has made the slightest dent in changing gravity. No matter how intelligent you are, how clever you are or just plain lucky you might be, nothing has worked when it comes down to manipulating gravity.

My main reason for starting this project in the first place was because of those simple facts. It was quite plain to me that we needed to look at gravity from some other perspective in order to gain insight into what we must know in order to make a much better attempt at controlling gravity. If all the scientists in the world have not accomplished this task it becomes plain we're doing something wrong. The whole purpose of this article was to give myself some fresh thoughts on how to build some form of anti-gravity device. But as you can see I have strayed quite a bit from my initial endeavor. If it wasn't for the fact that a lot of different things started to make

sense to me and have some basic logic to it I would not have continued beyond the search for gravity.

About half-way through my writings I discovered that gravity was the key to unlocking many other mysteries in the universe and presenting some basic logic to why so many things happen in cosmology and in the small world of quantum mechanics. If one thinks that connecting gravity to the three forces will create the theory of everything you will be quite wrong. It simply opens the door to a whole host of more questions and is essentially the tip of the iceberg when it comes down to understanding the nature of our being. Gravity will be essentially another minor tool used to do things like we use magnetism to do things.

The real quest will be how to manipulate the uniform gravity density of the universe to exceed the speed of light and to actually travel to the stars. Understanding tunneling, worm holes and folded space will be far more exciting than understanding the common everyday force we call gravity.

If you are inclined to build an anti-gravity device this may give you some ideas. You'll find that there is no mechanical or electrical property that we know of today that can directly effect the gravitational curvature. All mechanical devices work on the equal and opposite reaction forces. All electrical devices or magnetic fields are self-cancelling as far as gravity is concerned. Whatever the device we develop to manipulate gravity is, it more than likely will have to employ some form of motion or a change of time. I have given you some ways on how to change time but as of this moment I have thought of no way, myself, to create the anti-gravity force necessary to lift us off the ground. We defy gravity in many ways today, just not in the way we want to.

If you are clever, and I mean very clever, and you could stabilize time or motion and then vary the other forces, you might in fact create the desired effect you're looking for. Maybe this article will give you some ideas that I have not thought of. It is quite possible that nature is already doing this in some way and we have not yet recognized that fact, much like not recognizing heat as a change of time. It seems the universe never ends. The more you look at the cosmos the more you see. No matter how big the scale of the universe is there never seems to be an end in sight. The same is true with the micro-world for every time we discover a new particle it only leads us to something else even smaller. So it appears that both ends of our spectrum, from the small to the big, run to infinity. Whoever designed this thing, the universe, just plain wants to keep its secrets secret.

I am sure that somewhere in nature lies the answer we're looking for when it comes to controlling gravity. So let's open our minds and find it.

5 Finally . . .

I explain in the first four parts of Gravity Made Simple that gravity is simply the product of the conservation of energy. It simply says that when you change motion you change time, or when you change time you change motion. All these actions take place to keep energy constant. Since the presence of mass changes time, by doing something to the space fabric in its vicinity it will cause other objects in the area to go into motion, therefore ensuring that the conservation of energy is maintained.

I also mention that I did not know how the actual motion takes place, but after much thought and contemplation it became clear. Gravity has always been thought of as a one-sided force because it only draws things together, but the reality is gravity is a two-sided force. On our side of the earth you are pulled toward its center and on the other side of the earth you are pulled toward its center. Two masses must be present before gravity can work to move them. It is well known that we fall very fast towards the earth, but we do not realize that the earth actually moves towards us at the same time; not by much, but the earth does move. All objects respond in this way no matter how large or small they are.

So when we speak of gravity there must be two objects with mass to be able to create the gravitational motion as we know it.

In this Section I am going to give you some new thoughts about gravity which do not violate the time, motion and energy rules which I have talked about in the first four parts and which are governed by the conservation of energy.

These thoughts came about while I was mulling over the dimensionality of space. Superstring theory uses dimensions for its explanation of how space works and how particles are formed, so while looking at these dimensions a very strange and weird idea popped into my head, although with all of its weirdness it made some kind of sense. Over time this concept kept coming back into my thoughts and would not let go, therefore I sat down and began to put some reasoning into what I was thinking.

When you read what I am presenting your first thought will be that I have lost my marbles, and for a time I believed that myself for with all our present knowledge of physics this idea could not be right. So I am now going to give you this new revolutionary way of thinking. But don't get discouraged when reading this concept, for it does make some kind of sense even though it will seemingly contradict a vast amount of physics.

If you will bear with me, I will try and explain this new idea about particles, mass and gravity that will challenge your imagination.

5.1 Energy

To start with, I am going to go back and look at energy for a few moments. We are an energy system. Energy is what drives all our forces which causes mass which causes motion which creates gravity. Energy is the sum total of everything that happens in our universe. Nothing moves, nothing gets hot, nothing gets cold, and life would never have been created if something in the past had not bound together basic particles creating atoms and molecules that built all of the things we see in our universe today. All the energy we use today is from the taking apart of the matter which was product in our past.

Superstring theory gives us a better understanding of what energy is. It states that the energy in the vibration of a loop string (about the size of Planck's length, or 10^{-33} cm) is tremendous because it takes vast amounts of energy for something the size of a string to vibrate. This means that the loop must be under extreme tension. In a string loop this tension can be related to a vibrational energy which can be translated to a particle's mass on the order of 10 billion billion times the mass of a proton. Theory says that this particle's mass is way too large and does not match the actual masses of our everyday particles. As an example, the mass of an electron is something like .00054 times that of a proton. If a string loop represents an electron, then the mass of the string, when derived from its energy content, has nothing in common with the electron, for obviously an electron does not have that kind of mass that the vibrating string has. Therefore, in string theory, the masses predicted are obviously not in accordance with our everyday particles. This is a major flaw in string theory and most all theories.

Here is where another theory, called Quantum Mechanics, was used to solve this excess mass problem. Quantum Mechanics is based on the uncertainty principle and therefore uses probabilities to explain many of the strange things happening in the world of the small. It also puts energy into quantitative discrete bundles. Under quantum theory there is something called quantum jitter (which is said to be negative energy), and it is this jitter that cancels out a huge portion of the vibrating string loop energy bringing the mass of the string particles to a reasonable level.

So superstring theory and Quantum Mechanics come together to solve the string excess mass problem. I have many problems with this notion that one vibration in free space can cancel out another vibration. You can see this type of cancellation if you have two waves of identical amplitude and frequency and phase them so the positive and negative cancel out each other. This works only if you are observing these waves at the exact time that the peaks and valleys are coinciding. It is here that you will observe an apparent zero energy state, but you know the energy must still be there, for if you change the frequency slightly or shift the phase of your vibration the waves will reappear. In free space radiation waves simply coincide with each other

and go on their merry way. They create energy nulls and peaks, but the waves are never stopped in their forward motion and their energies simply do not disappear.

To complicate this jitter cancellation it is known that string loops do not always vibrate at a single frequency. It would mean that the vibrations of the string and the quantum jitter must be perfectly matched with each other to cause this apparent energy cancellation. So to make this work the string loop vibration and the quantum jitter must be synchronized in some way. Whichever the case, the two must work together in all combinations of vibrations to create the cancellation effect. Superstring theory predicts an infinite number of vibrational patterns, so quantum jitter would have to match each and every one of these patterns. Now if the cancellation is purely the effect of the presence of negative energy, then again the amount of negative energy compared to the positive energy would have to be perfect. It becomes apparent that one must create the other.

Is it possible that there is no need to cancel out all this energy in order to derive the amount of mass we see in our particles? Can energy really be canceled with quantum jitter in this way or is energy always there no matter what we do to try and cover up that fact? If this is true, why do particles have so little mass when they have so much energy? Because energy is directly related to mass and mass is directly related to gravity, why do we have so little gravity? Is there a form of energy that does not create mass? Is it possible that this form of energy makes up the majority of our particles? If the energy that creates mass cannot be canceled out no matter what we do, where does this leave us? Even string theory only touches lightly on gravity and has to use constants, fudge factors, approximations or probabilities to cancel out the enormous amount of energy stored in our particles to something reasonable when that energy is related to mass. Can we explain this lack of mass without using the cancellation theories? It is obvious something must be going on that we are overlooking.

Gravity and its properties were determined from the rate of fall of an object on the earth, the effect the sun has on the earth, and the effect earth has on the moon and all the other planets. This then is extended to the universe, covering stars and galaxies. It was determined that gravity is an unidirectional force. It attracts in all directions at the same time, and because of this its force drops off by an amount determined by the gravitational equations of Newton and Einstein. This is true for all large masses.

But when it comes to small masses our ability to measure extremely weak gravitational fields is severely limited for many reasons. The effect of the other three forces is so strong compared to gravity that trying to measure a particle's individual gravity at the microscopic level far exceeds our technical abilities. So we use these gravitational equations of gravity and translate them to the microscopic level believing that gravity acts the same at these levels as it does for the entire universe.

Can we really use the larger measurements of gravity when working at the microscopic level of our particle's size? Do particles have the same gravitational characteristics as our planets?

String theory gets more complicated as one digs into its details. It goes into vibrating strings which wrap themselves around curled up dimensions of space and so forth. Is energy really so complicated, or is it simply the way we are thinking? Have we gotten off the track of common sense and have not yet developed a good visual representation of the string and how it may be creating the particles we see today?

As I have mentioned before, if a particle influences all of space, that influence is part of that particle and cannot be separated from it. Gravity, in all due respect, is part of a particle that effects the entire universe, therefore the particle is as big as the universe. All the particle's forces are in the basic make-up of the particle and cannot be detached from it without destroying or altering the particle itself.

5.2 Particle Size

It is extremely hard to visualize the size of a string particle to the size of the universe for if a particle is the size of Planck's length, or 10^{-33} cm, how could it possibly influence the entire

universe? If you were comparing the size of a string to the size of us, it would be something like comparing the size of the universe to the size of a house, but here you have the universe compared to a string. How could such a small thing like a string influence such a large area? It stretches one's imagination beyond belief. But do not be deceived; size and distance are two different things. A string may be an inch away from us, but the edge of the universe to us is quite a different matter. A string may see the universe as we see the string.

If we now look at the other three forces that emanate from the string we see that they have a great influence on our own world. The strong, weak, and electromagnetic forces all play a major role in our everyday life. It is these forces that hold the strings, atoms and our molecules together creating our very existence. Gravity only plays a very minor role in the building of atoms, but maybe not, as you will see as you read on. Gravity may play a lot more of a role than you think.

5.3 Microscopic Gravity

Before we start, I am going to ask you to put aside the traditional thought that gravity is an unidirectional force. If you cannot put that out of your mind, at least for a short time, what I'm going to tell you will make little sense.

We have determined gravity and its effects from the larger universe, but there is absolutely no reason or proof that the same gravity equations used in the larger universe have meaning at the microscopic level. So let's assume they do not and see how the universe could be constructed.

Using point particle analogy I sat down and drew a point on a piece of paper. I called this point the first dimension. I will expand on this later, for I know that a one-dimensional point is infinitely small and has no real bearing on our universe. So I drew this point. I then asked myself what the second dimension would be. Of course it is the paper or a plane, an infinitely large and infinitely thin plane. Now I have a point on a plane which is infinitely thin. But I still had nothing that could really effect our universe because mass in our universe is three-dimensional, therefore there must be thickness to this system before it becomes mass.

I then asked myself, what if I gave the point energy and caused it to vibrate at right angles to the plane? By doing this, what would my system look like? What I got was a surprise. If the point was attached to the plane and vibrating, it would produce a thickness, or a bulge, in the plane around the vibrating point and the bulge size would correspond to the propagation and resistance properties of the plane, and since the plane is infinite in size it would effect things at a huge distance. If we consider the plane as large as the universe and the point the size of a string which is attached to the plane and is vibrating, you get a picture that looks something like looking at the edge view of a spiral galaxy.

Oscillating point attached to a two-dimensional plane.

Now let's take the vibrations of the plane further and relate them to a vibrating string. There are two types of strings: an open string and a closed loop string. The closed loop vibrating string contains the necessary ingredients to produce mass or warp space creating gravity, while the open vibrating string contains energy but no mass. But when vibrating, both strings contain vast amounts of energy. Einstein clearly says that mass and energy are related ($E=Mc^2$). This means that both types of strings should produce mass, but they do not.

An open loop string in free space (space with a uniform density) that is vibrating will have equal symmetry, or almost equal symmetry, between the plus and minus vibration of that energy. This type of string will have no mass and will be traveling at the speed of light, thus its time will be zero. At the other end of the scale, such as with the closed string, if you have infinite mass with no motion you also get a time of zero. Time, motion and energy are all interrelated.

If you drop a pebble into a quiet pond it creates ripples moving outward from the pebble. If the surface of the pond is considered a second-dimensional plane the ripples could be thought of as the energy or vibration of the plane. If you were at the surface of the water and looking towards where the pebble was dropped and it was dark, you would not see the wave coming. Your observation would appear to be two-dimensional because the only time you would know

that the wave was coming was when it hit you. The same would be true for a light wave, for you cannot see the light coming until it strikes your eye or detector, and once it had passed you, you again would no longer be able to see it. You can only observe light rays if you are in their direct path. Light cannot be observed from the side. You cannot see light coming nor can you see light going. This means that a light ray to you is two-dimensional energy, for you can only see it one picture frame at a time. If you added time, which you need to do to make your observation, you could call a light wave three-dimensional. Two-dimensional things do not produce spatial distortions that would give you the ability to observe them from all directions. Because the open string has no mass, the entire string is traveling at the speed of light and it is traveling as if it is on a plane.

5.4 Loop Strings

A vibrating loop string is composed of energy circulating around a closed loop or doughnut shaped two-dimensional structure. This type of energy vibration is confined. The loop structure itself is not traveling at the speed of light. It is the vibrating energy that is contained in the loop that is traveling at the speed of light. Loop strings generate mass and mass cannot travel at the speed of light.

Let's consider the energy vibration of the loop string as its first dimension and the movement of energy around the loop as its second dimension. We now have a vibration traveling around a donut-shaped two-dimensional plane. But this still does not produce a three-dimensional particle. Or does it? Since the energy which is vibrating the loop is inherently tied to the loop as a swing point and is traveling at the speed of light, and if we consider the speed of light a constant, the vibration becomes non-symmetrical because the energy is moving around in a circle. This means the energy's motion is constantly curving in space.

As the energy wave travels away from the string loop it has to travel a greater distance than the wave traveling on the inside of the loop. This produces an extreme imbalance of energy over time. To keep energy constant time or motion has to change, and since motion cannot change, time does. This all happens because of the confined energy density that the loop causes which in effect changes the motion of the wave by delaying it, or in effect concentrating it. (A greater energy density creates a slower time and a delay in motion, much like what I previously explained using my magic crystal.) This effect creates an extremely dense area inside the loop and a diminishing density outside the loop along the plane. This maintains the necessary symmetry of energy and balances out vibrational energy.

These time differences force the plane to bulge creating a three-dimensional object. It does this mostly inside the string loop and secondly outside the string loop along the plane. On the outside of the loop the fattening of the plane decreases in thickness as it moves away from the loop. The inside of the loop now contains a vast amount of energy in an extremely small space creating the basic particle structure we see today.

Now since the energy traveling around the loop is traveling at the speed of light another condition exists, and that is the force generated by this action. Simply stated, because the string loop itself is so small, like 10^{-33} cm, the energy is rotating about 1044 revolutions per second around the loop.

It is only because the energy in the loop is massless that the centrifugal force does not tear the string loop to pieces. But the energy of the loop is producing a spatial distortion, which causes mass, so there must be some gyroscopic action, and any acceleration or movement of the particle will produce a resistance to that movement.

Inside the loop there is an extreme gravitational distortion but outside the loop, or in the plane, that distortion diminishes rapidly as it expands outward. If we only look at the plane outside the loop we see that it is very thin and extends out to the edge of the universe. This means that the plane is the gravitational distortion we observe in our world since we are stipulating that gravity is not an unidirectional force. In other words you can be very close to the string loop bulge itself and not experience any gravitational pull until you cross the second-dimensional

plane of the string particle. It is in this plane that you experience a space-time distortion, or a gravity effect, and in no other place unless you actually get extremely close to the vibrating loop itself. This of course is very difficult to do because of the rotational speed of the energy in the loop. This is why the gravitational field of a particle is so weak when there is so much energy stored in the loop string. There is no particular reason why one must cancel out energy in order to reduce the Planck energy of the particle to bring it to a level of mass that is common to our universe.

Now let's look at this a little closer.

As I understand it, a string is considered a one-dimensional thing, but it is not a point. It is more like an infinitely long point, or basically it is just like a piece of string. The loop string has properties to produce mass while the open string does not. These strings can be very short or very long and loops can be small or large and strings can vibrate at a multiple of frequencies. The lowest frequency of vibration in a loop has to do with its mass. Strings can only vibrate in multiples of their fundamental vibration. The fewer vibrations that are in the loop the less mass the string has. You will get more mass with more vibrations or with a larger loop.

The higher the frequency of the vibration the more energy contained in the loop, just as the higher the frequency of radiation the more energy that radiation contains. (When I refer to radiation I am referring to the full spectrum of electromagnetic radiation from the lowest frequency RF to light and gamma rays and so forth.) The string is also flexible; it can change its shape, its size, and even its length, giving it the quality to produce an infinitely large number of different vibrational patterns. Even with all the ten-dimensional properties of string theory it has not been able to explain the mass contained in our everyday particles. String theory just has too many solutions.

When something vibrates it usually vibrates around some base line giving it the properties of a plus and minus condition (our reference of course), so when the string vibrates it has peaks and valleys in which there is a center, or zero point, of the vibration. In other words, the string vibrates around some perceived reference. If the string was straight and in flat space the positive and negative vibration of the energy would be a perfect sine-wave and equal on both sides of the string creating a balanced energy system. But no open string is ever straight because the energy of the vibration will always cause it to have some curvature. So the open string does create an unbalanced energy vibration which produces its propagational properties.

This means that the loop string will have a far greater unbalanced energy because the plus and minus of the vibration has to run around a confined loop. The loop size will cause the vibration to have a certain frequency because of the loop's confinement. This frequency is called a resonance in our everyday life and is used in the design of most all of our electronic circuits. Any other vibrations will become multiples of the fundamental frequency.

Now instead of a point of energy vibrating on a plane we place the two-dimensional vibrating loop string on the plane. With this type of vibration we see that only the positive or the negative peaks of the vibration can exist at the center of the loop when we use the loop itself as the reference center of energy.

It is well understood that positive's energy will cancel out negative's energy. But as I said before, can you really cancel energy in this way when you are dealing with non-solid waves? We can cancel electrical properties in this manner, but canceling out the electrical properties does not cancel out the energy that these properties have when dealing with waves in free space. Two solid objects colliding will cancel out each other's motion, but waves in free space only do so at one instant of time along their path of travel providing the waves are perfectly matched.

The string loop, where the plus and minus energy vibrations center on, now becomes the horizon of the particle and produces the characteristic fields associated with it. The string loop, or swing point, of the energy vibration now becomes the particle's surface we see. Here the inside of the loop now resembles the gravitational field of the earth. At the center of the string loop there is a huge spacial density while the horizon of the string has the greatest spacial distortion. Gravity is caused by a spacial distortion. This distortion extends outward along the plane to the edge of the universe. The distortion in the plane is very small and will produce an extremely

weak gravitational effect.

In this case the particle only exposes the second-dimensional plane of the loop to the rest of the world. If you do not coincide or interject with the plane you will not experience a gravitational attraction to the particle. You will of course ask yourself, how is it that the gravitational field of a large object seems uniform in all directions and not directional like the particle I am describing'

The reason for this is quite simple. Particles are always in motion for they are rapidly vibrating, jittering with Quantum motion, and spinning. This means that the plane is constantly moving and shifting position, and what we see and measure from this movement of the plane is an average of the plane's distortion crossing our position. We experience gravity as a series of pulses rather than a constant pull. Since there are literally an infinite number of the plane's distortions doing this simultaneously we measure a consistent uniform gravitational field. It is from these larger measurements we have determined all our gravitational equations.

5.5 Strong Force

You should by now have grasped the implication of the bulging plane's structure for it becomes the strong force which is a gravitational distortion and that distortion resembles the gravitational distortion of the inside of a planet with no solid core. The horizon of the string represents the surface of the planet in which the greatest gravitational distortion exists, while at the string's center there is only a gravitational density with no distortion. To move from the inside of the string to the string's horizon is like climbing from the center of the earth to its surface. Here you will have to add energy to accomplish the feat and that energy amount will increase until you reach the horizon of the particle. This is a simple reversal of what you get from the surface of the horizon outward along the plane where the distortion will diminish taking less energy to move away from the particle. This is unlike the earth's gravity where if you were to move away from the particle's horizon, other than the plane, you would almost immediately be free of the particle's influence, or strong force. This of course excludes the particle's electrical properties. This states that you could be very close to the particle itself and not experience a gravitational pull unless you actually cross the plane created by the particle.

For all practical purposes with the scenario I have just explained, gravity has always been included in all of our theories. It has just been misunderstood. It also means that there are only three major forces, not four. But wait, as I go forward here, there is a fourth force, although it is not the one you may be thinking about. There is much more to this loop string than you might imagine.

First, loop strings are not generally single vibrational entities. It is more than likely that the most fundamental vibration of a string represents a fundamental particle. Strings that have a fewer number of vibrations and lower frequencies will have less mass. In this category you could probably place the electron, but the majority of heavier particles more than likely have multiple vibrations consisting of multiple frequencies and string loops of many sizes and spacial distortions. It is also possible that the multiple frequency strings are harboring multiple second-dimensional planes causing the complexity of the string particle to grow dramatically. The more planes produced, the greater the mass of the particle.

Since the string is so small the energy density at the center of the string, compared to the outside of the string, is huge. This brings us to the point of asking, what is the energy we are dealing with'

Now that I have combined the gravitational force with the strong force, what about the other two, the electromagnetic force and the weak force, or the electro-weak force? When energy is released it is released in the form of radiation, or another particle with less energy, but even the other particles when broken up will release radiation or electromagnetic fields traveling at the speed of light. Everything that moves toward greater entropy eventually winds up as radiation. Here we now ask the question about the open and closed loop string, and that is, what is the nature of the energy of the vibration of the two-dimensional string'

Up until now I have purposely left out the electromagnetic force in this discussion, however I believe it is a significant factor in the energy vibration of the string. In fact it actually becomes an integral part of the vibration of the string. Here the electromagnetic force is directly related to the string's energy. The two forces, that is the strong force and electromagnetic force, cannot be separated but work in tandem to produce our particles. In other words, the energy of the plus and minus wave that is traveling via the string or string loop is basically radiation. You could look at this in two ways; either the string vibration creates an electromagnetic response or the electromagnetic wave creates the string vibration.

It is here that one really wonders what the string is. Thus far I have only been describing it as a piece of string, but a piece of string is made up of something. String theory uses the string analogy as a mathematical representation to describe the characteristics and make-up of particles. Its ten-dimensional characteristics are needed to describe the string's actions and the properties of particles. This means that the string itself must interface with all other properties of space in order to manipulate energy to produce the world we see today. This gives the string substance, connectivity, polarities and other characteristics in order for it to produce particles. Thus the string must have a spatial force property of its own and you could call this the fourth force. It is the force that holds the string together, for without this force none of the other three forces could happen. The string itself is what ties energy together.

5.6 Why Radiation Travels In a Straight Line

Let's start with the open string and tie it to a two-dimensional plane like the surface of a pond. We then vibrate that surface causing it to fluctuate. This fluctuation causes the surface of the pond to move up and down, but that movement has to follow the surface of the pond because the movement is tied to that surface. We know that all energies have a desire to move in a straight line and any deviation from this line takes some external energy. When an electromagnetic wave travels, it travels as if it is traveling on a two-dimensional plane and follows that plane. Since the plane is a spatial distortion it will have a resistance to a change of direction because a spatial distortion is the particle's connection to the fabric of our universe. When radiation seeks to travel in other than a straight line it produces movement in its plane thus creating a resistance which acts as a feedback loop to the radiation bringing it back to its original course.

The mass of the closed loop string acts in the same way for it has resistance to curving in space and acceleration. When mass is moved other than in a straight line in space, like the spinning of a weight, a force is generated in the outward direction. It is the plane of the particle that cause a resistance to the direction change. When mass is accelerated, that same resistance is present. The plane now becomes a lagging indicator until the acceleration is stopped. You must use other forces or energies to create these effects which counter-balances all energies. When something travels through a spatial distortion, such as a gravitational field, that distortion is counter-balanced by whatever created the field in the first place. Gravitational fields are time varying and all energies in a gravitational field will seek to follow a zero time path.

The effect of the plane on the fabric now determines the propagation properties and thickness of the plane's distortion as it emerges from the string's horizon. Since the string particle's size is in the order of Planck's length, the plane becomes many orders of magnitude smaller, making the mass to energy ratio of the string extremely large. When mass is moved the propagation of the plane's distortion must be high because the resistance to movement stops as soon as the change of motion stops. Therefore, since the distortion covers billions of light years, that propagation must exceed that of light or a lingering effect would take place.

Inside a loop string the amount of energy is enormous and it is this energy inside the loop and along the plane that creates the spatial distortion causing time to slow down, thus gravity. But this vibrational energy also has electrical characteristics since it carries with it an electromagnetic field. If all the positive peaks of the radiation are inside the loop, we will get a positive charge associated with that loop. If the negative peaks are inside the loop we will get a negative charge associated with the loop. Secondly, the like charges of the wave will repel each other

creating a counter-force within the string loop causing the loop to stop contracting at some point. This happens when loops are formed. I will elaborate on this later. This means that it is the electromagnetic radiation moving in curved space in concentration that causes the spatial distortion creating our three-dimensional system. In this scenario the plane's vibration and the electromagnetic radiation are acting as one.

Under these circumstances we can create a positively charged particle or a negatively charged particle. Since the amount of the electrical charge is tremendous it becomes readily observable in our world. But this is only one part of electromagnetic radiation, for this radiation contains a magnetic field and a static electric field. Here the magnetic field is subdued while the static field becomes dominant.

Mass is the product of the electromagnetic radiation traveling in other than a straight line along the string while gravity, or the spatial distortion that causes gravity, is the result of the energy concentration distorting the two-dimensional plane.

The string loop now becomes a pocket of energy which is no longer moving through space at the speed of light. What we see when we view a particle is the energy of the string's vibration and the electromagnetic radiation in a close loop condition. Here the plane is no longer traveling at the speed of light. This is why the loop string has mass, for the string's mass is created by the plane's interaction with the fabric. Radiation in loop form appears as a solid object. It is the only time you can really see what light looks like.

5.7 Where Did Loops Come From

How are loop strings formed? How can the loop hold electromagnetic radiation in such a small confinement? We cannot see the radiation at the loop frequency, but only see it as radiation when it is released as an open string from the loop confinement. When the string is formed, the radiation frequency is not changed, but it is delayed much like in my magic crystal because of the density of the string's energy. String particles now become solid matter because we cannot enter the energy realm of these particles. Here I will give you some idea of what may be going on.

In this example I am going to start with an atom. We then bombard this atom until it releases energy. Let's call this energy a photon. The photon then travels from this atom through space to a detector which converts the photon's energy back to an energy state that releases another electron from my detection device. The process is simple; convert energy to a photon particle, or radiation, then capture the radiation and convert it back to its original form.

I am assuming here that all particles are some form of loop strings. But loop strings have an extreme variety of strengths. Many of these particles have very weak vibrations, therefore very weak loop-holding properties. These loop strings can be opened up with little external force. When a vibrating loop string opens, the mass that was created by the loop vanishes and the string expands rapidly in order to re-balance its plus and minus vibrations to a free space condition. The rapid expansion becomes obvious when you think of the size of the loop string, for here we are starting from the Planck-size doughnut with its interior containing enormous amounts of energy and releasing that energy. This energy, or radiation, now a photon, travels through space as an open string on its self-prescribed plane. The open string then collides with the atom in my detector thus gaining energy which closes the string once more causing it to loop. When the string's mass reappears the forward motion of the string stops and the particle reappears. This excess energy in my detector atom knocks out an electron indicating that I received a photon of energy.

This sequence of events makes you wonder about the structure of the loop string itself. For instance, let's say at the beginning, or the big bang, there was nothing but open strings which were vibrating with tremendous amounts of electromagnetic energy. To us, these string vibrations are basically radiation. At the beginning of the bang the energy density was so great that the strings could not loop, but in time, when the energy density dropped, a large number of these strings closed themselves to loops. These loops were huge and covered a great deal of

space. But when the loop closes there is a difference of time inside the loop compared to the outside of the loop. The slower time inside creates a spacial distortion which creates motion in that direction. The string now starts to take on mass by creating a new plane's structure from that of the open string. Thus the loop shrinks creating an even greater time distortion. This process continues until the loop becomes about the size of Planck's length, at which point the inside counter-forces of the contraction are sufficient to stop the loop from contracting further and a balance of energy is created thus forming a stable particle.

This means that loop strings are self-generating when sufficient energy is available. They are generated from the open vibrating string. When a loop string is opened the energy that was confined to the loop will expand rapidly towards its original condition before the loop was formed. You could call this an inflationary condition and why radiation is the outcome when higher energy sources are reduced to lower energy sources.

In essence, this says that radiation is the main driving force which creates all mass in the first place. If there was no energy to vibrate a string into a radiation condition no mass could be created. So it is possible that the initial energy of our universe was radiation which was tied to an open plane. The plane of the string is the glue that keeps the radiation coherent so its forces do not just fly apart.

Radiation is two-dimensional and expresses itself at right angles to the two-dimensional plane, or the spatial distortion, of the particle. If the electron's energy is released by opening the electron's loop, a vast amount of energy would be released as radiation. But we know that electrons are not that easily destroyed, so where does this radiation come from when we bombard our atoms? For the most part our atoms are made up of protons, neutrons and electrons. The protons and neutrons are held together by the strong force while the electrons are held in orbit by the electrical force. The energy required to remove an electron from orbit is small compared to separating a neutron and proton, but when they do separate, energy is released in the form of radiation.

So which string loops are opened when a separation takes place? Obviously it was not the breakdown of the electron, proton or neutron of the atom. So the breakdown and release of energy came from the forces holding the two particles together. But it takes the insertion of energy to get energy out. If I insert a photon of energy into an atom to release an electron it simply replaces or nullifies the binding force energy, therefore releasing the electron. In this case it is not necessary to have a binding particle because you are simply driving the electron away with another force.

Do we really need force particles? When we remove an electron from an atom we remove it by giving the electron more energy, or nullifying the charge between the electron and the nucleus of the atom. But the removal may only be temporary, for the energy that released the electron is not always captured by the atom and held there. Once the energy is dissipated the atom's charge returns and it attacks another electron. Was there a force particle actually exchanged in this process or is it simply an energy exchange?

Are force particles, the ones that come out of our atom smashers, created by the energy in the particle's collision and are not necessarily ingrained in the atoms themselves? It is quite possible that the field structure of the atom can capture open strings and it is these strings that we see emerge from the collision since the plane and its electrical properties are the part of the particle that produces the binding forces. These captured strings become a part of those binding forces, thus when they are added or removed from the field structure they enhance or weaken the forces holding the atom together.

The strong force which holds the nucleus together would emanate from a point close in to where the plane leaves the string's horizon. The weak force would be derived from the string's horizon other than along the plane. The electrical properties would be derived from the concentration of charges inside the loop and outside where they are subsequently returned via the plane. The gravitational distortion and its return I will speak of later. The strength of all of these fields apparently can be influenced by other strings. It is these strings that can change the binding force's strength.

5.8 Quantum Jitter

Quantum jitter is a very interesting outcome of Quantum Mechanics. The jitter is said to have negative energy, and it is this energy that cancels out the vibration of the string's energy leaving only a tiny bit left over that produces mass, which of course causes gravity. But what causes the jitter and why is it made up of negative energy? Jitter can be perceived as the vibration of an object. If this object is a jittering string particle it means the whole string is vibrating and causing negative energy which is in almost perfect synchronization with the string's vibration. How the jitter becomes negative I do not know, nor do I believe you can create negative energy by simply wobbling something.

To me this sounds like the jitter of the string is simply caused by an imbalance of energy, much like a top will wobble when spinning if it is unbalanced. For example, the moon revolves around the earth causing the earth to wobble in its path around the sun. But if the moon was in an extreme elliptical orbit around the earth the earth would wobble a great deal more compared to what it does now. This is simply due to the equal and opposite reactions of mass in free space. If the energy rotating around a string loop is unbalanced it will cause the string to wobble erratically. This wobble will depend on the nature of the energy vibration rotating within the loop. This becomes possible because the loop itself is movable, bendable and stretchable. Because the string is constantly in the state of motion the erratic vibration, or jitter, could be great and thus the jitter and the vibration are, in a sense, synchronous with each other. This jitter caused by the vibration causes the confinement pressure which is the pressure seen when trying to confine a particle.

This jitter can be extremely wild and if the particle that is jittering has an electrical charge or field these fields can be introduced into nearby particles. These extended fields give the impression that the particle is not where you think it is. This may have a lot to do with the uncertainty principles and why probabilities are needed to locate a particle.

5.9 Quantum Tunneling

Quantum tunneling is extremely interesting. Tunneling was predicted, verified, and is based on probabilities. There is a probability that one could pass through a solid wall and not be affected by the wall. But the probability is astronomical and far exceeds the life of the universe. Being more down to earth, semiconductor devices use this effect quite efficiently as switches and amplifiers. But these devices are only using electrons to pass through very thin barriers. It is not at all understood exactly how this happens or exactly the speed at which the electron is transferred from one side of the barrier to the other and why this effect has to be determined by probabilities.

Because a spatial distortion is caused by the particle plane's structure there might be an explanation to this tunneling effect. Since the electron has a small mass it therefore probably has a low vibration. Also this vibration has a high probability of passing through its zero energy point for an instant of time, or if it has more than one vibration it has a probability of a cancellation point at some point of time. Now if you place the electron under pressure by an external magnetic or static field against a barrier and the plane of the electron faces through the barrier, you could get a probability that the vibrations could all cross the zero energy point of their transition at the same time. This would mean that the electron mass would simply vanish for an instant. At this time the second-dimensional energy loop of the string could slide through the plane across the barrier. The electron then would re-emerge on the other side of the barrier as its vibrations continued on.

This whole process would be very critical on timing, but in the process no energy would be lost or gained. The electron would simply disappear at one point because it was no longer three-dimensional, then travel through the two-dimensional plane and re-emerge. There would of course be critical distances on how far this movement could happen due to the length of time of the zero crossing, providing of course that there are no time distortions within the plane. But

due to the high concentration of energy in the plane it is possible that a time delay will occur, thus keeping the vibrational energy in the crossing point for a longer period of time, thus the distance of the tunneling would be lengthened.

This means that you could actually transfer particles from one point in space to another using a very small amount of energy. But as particles become more complicated by the addition of more vibrations or complex vibrations, the probability of this transfer not happening becomes higher and higher. So it does not appear to be, at this time, a practical thing to do with more complex particles.

5.10 Open String Propagation

Radiation travels at the speed of light and in a straight line but the string that holds radiation together is always curved. The more energy in the radiation the more curvature it has. If the radiation intensity is high enough you can produce a particle. This means that the open string will close itself and produce a loop string when sufficient energy is present. Here it is clear that the electromagnetic radiation causes an imbalance in the string itself producing the curvature. This imbalance causes the propagation. The straight line action of the propagation, as mentioned before, is because any deviation by the radiation from a straight line in space will produce a small amount of spatial resistance to a change of direction. This resistance keeps the radiation from changing its course. It is a simple feedback loop caused by the space fabric to maintain the conservation of energy. Radiation follows its two-dimensional plane.

One more aspect of this is the effect of acceleration. When you accelerate an object you get an initial resistance to that acceleration. This resistance is caused by the momentary in-balance in the plane's structure when an object is accelerated. Space does not differentiate between an object curving in space and an object accelerating in space. Straight line acceleration produces the same effect as an object curving in space. One is just called a centrifugal force.

5.11 Matter and Anti-Matter

Anti-matter is a mystery, at least to me. I have read no theory of why anti-matter exists and why it is always created when a particle is created. There is no anti-wave when waves are formed; it seems that only particles with mass have an anti-particle. What are these anti-matter particles and where do they come from? An electron has a positron and virtually every particle has a corresponding anti-particle and that even includes the force particles. Anti-particles are said to have the same mass as their corresponding regular particles but have an opposite spin and polarity. In fact there is very little that explains the spin of a particle other than the particle is rotating something like the earth is rotating.

I am confused when one tries to explain right-handed spin and left-handed spin for if I were to look at something spinning and look at it from the top it would be rotating in one direction, let's say clockwise, but if I were to look at the same object from the bottom it would be going counter-clockwise, so how could one distinguish what direction spin means? But when spin is measured in our accelerators or atom smashers it is measured in a field, therefore it has a reference in comparison to other particles. But this is not the case if you're thinking of two independent particles in space where there is no reference telling you which one is spinning which way. This implies that there is some sort of global reference that tells each particle that one is different from the other. String theory does mention local and global characteristics of particles implying that there is some form of spatial fabric or structure which influences our basic particle's structure. This has to do with the six curled up spatial dimensions in superstring theory.

In the scenario that I have proposed, when an open string gathers enough energy it will close by connecting its ends forming a loop string. Then the loop will collapse forming the string particle. The energy in the string is moving at the speed of light so when the loop is formed that energy must now move around the loop so it is rotating quite rapidly in a curved path in

space which creates the mass we experience.

But there is a problem with this energy rotation and that is how this energy, when going from an open string to this closed loop, can rotate in free space. As you know the only way to rotate something in free space is by emitting some form of energy like a small retro-rocket would do. If you were an astronaut floating outside your ship and you did not have some form of propulsion with you to move you around you would find it impossible to make yourself spin. To do so you need an equal and opposite reaction force. Since we cannot use this global space reference to push against we are simply dead in space.

Here is where the scenario of string theory I propose might answer the anti-matter particle mystery.

At the instant of time when an open vibrating string forms a loop the radiation that was moving forward at the speed of light is now forced to move in a continuous change of direction in space or in a circle. To do this the energy must push against something. Without a counter-force the continued propagation of the wave in a loop cannot happen. So to conserve the forward motion of energy the wave creates a counter-loop with opposite polarity and with it spins in the opposite direction of the main loop. This divides the loop's energy but keeps the energy in motion. Thus, in effect, the loop duplicates itself creating its anti-matter particle. It does this because the energy content of the string must be conserved.

String energy rotation counter-clockwise.

String energy clockwise.

The string's vibrating energy must produce a counter-force to continue its propagation. This counter-force energy becomes the anti-matter particle.

Anti-matter is simply the counter-force needed to continue the vibrating wave propagation in the loop string. Without this counter-force the energy in the loop would have nothing to push against to cause it to propagate around the loop thus the loop could not be formed.

5.12 The Big Bang

This concept of particle formation brings about a very interesting scenario regarding the big bang, if indeed the big bang did occur. Let's take a quick look at it in this regard. First, if radiation is the main culprit in causing mass it is possible that the big bang occurred in a little different fashion as one might have visualized. In this example the original big bang was nothing but concentrated radiation. Because radiation is made up of open strings it does not carry mass so at the beginning of the big bang there was no gravity as we know it. This radiation was extremely dense and had the properties of light and heat and was somewhat confined to certain frequencies. Whatever created this initial burst of energy I do not know but it was intense and started to expand into the universe because that is what open strings do. Since strings have a desire to curl at certain energy levels they started to do so as soon as the radiation's energy level dropped, thus string loops formed carrying the characteristics of that radiation with them. This means that the loop vibration represents the frequency vibration of the radiation that the open strings contained at the time the loop was formed.

So the string loop particles that were formed were very much identical in nature. They could have been electrons, quarks, or any other number of particles. In this process the vast amount of particles were formed in stages of the expansion and then mixed up later to form our atoms. Each stage of the expansion would have different energy levels and frequency of radiation, therefore would produce different types of particles as the expansion took place. Quarks would be produced at one stage while electrons would be produced at another stage and so on.

When a string loop is created it then collapses under its own self-contraction mode to a very small particle. When it does this it takes with it a very large amount of radiation energy and in the process creates mass. So on the outer edges of the big bang expansion we see radiation simply disappearing because that radiation was being gobbled up by the open strings creating closed strings. When closed strings are made mass is created and a gravitational distortion is formed and all this new mass is on the outside of the expanding big bang. This new mass starts to

impede the progress of the expansion and eventually stops it. All this mass causes the expansion to implode but the amount of heat and energy inside is tremendous thus tearing apart some of the newly created particles and releasing their energy, once again bringing about a re-expansion. In this cycling process more and more mass is created and thrown out into the universe with such velocity that they escape the influence of the big bang itself. In most cases the mass was thrown far enough away from the initial blast that it could not produce a gravitational force sufficient to produce a black hole which, of course, would have stopped the initial expansion and the universe would never have been created. This could answer the question of why the big bang was able to explode when it had so much energy and mass in such a small area. It simply should have created a black hole and the universe should not exist.

5.13 The Plane

Can the plane actually extend out to the edge of the universe? And if it does, is its distortion subject to the speed of light? In this scenario the only thing subject to the speed of light is radiation which, of course, now makes up everything we know about in our universe, including mass. Of course this clearly states that if we are made up of radiation we of course cannot travel faster than radiation and that energy necessary to try and reach the speed of light becomes infinite.

But here the plane is an independent entity in itself although it and radiation work together and cannot be separated therefore it is not necessarily subject to the velocity we call the speed of light. The plane has the ability to carry and transfer radiation much like the air has the ability to transfer and carry sound waves. The plane of the string apparently is part of the structural content of the fabric. The plane can connect with other planes; it can loop and it can un-connect almost at will. Radiation and the plane is the outcome of what the introduction into the fabric of energy creates. To the plane of the string the apparent size of our universe might only be a few inches because it is not restrained by the speed of light, therefore making it quite possible that the plane continuously senses the whole universe.

5.14 The Ten Dimensions

Are the ten dimensions in string theory really just ten characteristics of something instead of a mythical or an un-comprehensible entity of space time? I have always had a difficult time understanding dimensions, mainly because everybody says that it is impossible for our minds in this three-dimensional world to comprehend anything over three dimensions. I just could not believe that the world is made up of a bunch of mythical characteristics that we will never be able to understand. So I look at dimensions a little differently than others. I call them characteristics or properties instead of dimensions. A three-dimensional system has three basic characteristics, all of which can be understood when we are talking about mass, therefore energy, other than mass, does not appear to be three-dimensional which leaves it to exist in other forms.

String theory is built upon a ten-dimensional system with one of the ten dimensions being that of time. Time of course is always added on to our equations because it is how we detect and measure things, therefore basically string theory is nine-dimensional.

Out of the nine dimensions, three dominate and create matter, but the other six cannot be separated from these dominate three therefore each of the three must have three dimensions of their own. When I talk about any one of the three basic dimensions I mean that they each actually have three characteristics which define them. This says that two of the three characteristics of that one dimension are suppressed, or what today's physicists would call curled up. So my first dimension has three dimensions or characteristics with one dominate and two suppressed. Now my second dimension also has three characteristics with one dominant and two suppressed, but this second dimension is directly tied to my first dimension, therefore these two dimensions are in fact working together to perform a function. Now I have six dimensions, four suppressed, and two dominant. Following this line of thought my third dimension also has

three characteristics; again two are suppressed and one dominant and they are tied to the other two dimensions. This leaves us with nine total dimensions or characteristics; six are suppressed and three are dominant. It is the three dominants? characteristics that makes up the numerous types of particles in our world.

When we maneuver the three dominant characteristics we cause the sub-characteristics to change. It takes three dimensions to make up mass but the energy that makes up this mass comes from radiation which is a two-dimensional part of our three-dimensional system. This is why radiation does not curve space time, at least the space time that causes gravity.

To take this scenario further we could also say that each of the nine dimensions or characteristics must each have three dimensions of their own, which would mean a 27 dimensional state, or 28 dimensions when adding in time. String theory talks a lot about a 26 dimensional state and, when re-normalized (compactified), comes down to three dimensions to fit the characteristics of the particles in our world. These thoughts really make one wonder how far down does the structure of our universe lie or is there really no end at all.

5.15 Gravity and Anti-Gravity

Does gravity or the spatial distortion that is created from a loop string have a counter-part? Is gravity really different from all the other forces which have an opposing side or polarity? Is the gravity field really as large as the universe? Is it possible that the plane's distortion could extend outward billions of light years and then loop around to the other side of itself, thus balancing the gravitational pull with a push and making gravity conform to the conservation of energy'

This question still haunts me, for I find no reason why the gravitational pull should not have a counter-gravitational push. All other forces have a counter-force so is it possible that in this scenario of gravity which I have given you we could find this counter-force. With the plane's structures which I have described one can indeed find a counter-balancing force to make gravity a balanced system. This type of scenario could explain why the universe is not obeying the gravitational laws we have set forth.

Using the plane's structure as our model, we find that the center core, or the bulge of the plane, is what we experience as our particles. The plane's structure which now extends outward thins as it moves away from the bulge and is the part of the particle which connects the particle to our universe. This connection of the plane produces the particle's mass we measure. But does this plane's structure thin outward to the edge of the universe? This is unlikely, for all particles have a definite field size and influence. All fields or forces have a return which balances out that force. So as the plane extends outward the plane should separate at some point creating a field loop which extends back around to the other side of the plane. A simple sketch may help you visualize this better.

Here the field structure of the plane extends outward from the bulge looking something like my drawing above showing a loop for the top half of the plane and a loop for the bottom half. So let's trace this gravitational distortion from the bulge outward. At the bulge we have an extreme gravitational spatial distortion, however as we move out along the plane the distortion diminishes in strength until at some point outward, let's say a few billion light-years outward, the plane's distortion becomes parallel with itself, or what I would call uniform in density, therefore it does not have a gravitational influence. But as we move further out on the plane it separates once more in order to create the field loop which it has generated. This separation now creates a time distortion opposite that of which the bulge created, thus balancing out the inward attraction with an outworked attraction, because of the distortion at the outer edge of the plane. The main difference is that at the bulge the spatial distortion is concentrated while its counter-part is diluted because of the huge amount of space that the plane now occupies.

Mass in the outer portion of the plane will not be attracted to the particle creating the plane but will appear to be pushed away from the particle. The reality is the mass will be attracted away from the particle. Because the time in the outer portion like the time in the inner portion of the plane will be slower as one moves further away from the particle. Objects move toward

slower time areas. This effect is limited to the plane's expansion area which is now defining the particle's size.

This means that the gravitational influence of a particle or mass does have a limitations and does not necessarily expand its influence to the entire universe. This brings the gravitational field of a particle in line with the other force fields associated with particles, meaning that the gravitational properties of particles or mass is not mythical in nature but can be truly understood. Here the gravitational fields do not have a one-sided attraction but carry with them an opposite attraction which could be called a push or an anti-gravitational force. Since a particle now has a size limit, there is no gravitational influence or mass connection to the universe outside the particle's plane distortion.

What does this mean to our conception of how the universe works? It says that the gravitational influence throughout space is not uniform. There may be areas in space that contain a weaker or stronger gravitational spatial distortion than other areas of space. There may be plane's alignments which produce denser gravitational effects which will cause objects or planets to congregate in these areas. This type of action could produce the spiral galaxies we observe and why spiral galaxies are shaped like they are. It also means that at some distance away from the particle along its plane, there will occur a gravitational push rather than an attraction. It is believed the universe at some point is accelerating outward faster than it should. This outward push could be generated by the outer edge of the planes. Due to the size and complexity of the universe it is difficult to say where and how these outer edges of plane's fields may start this push, but it becomes clear that the creation of dark energy, or dark matter, is not necessary to explain why the universe is acting the way it is.

I have mentioned earlier that I believe the universe will eventually collapse because the total amount of energy and mass present in the universe would cause it to do so. However in this scenario a certain amount of mass in the universe would in fact continue to expand outward once it has reached the critical distances between masses. If this critical distance lies in the area of eight to ten billion light-years and the mass contained enough motion energy to continue the separation, the counter-force of the plane's field would then take over and the mass in this part of the universe would expand forever. This may be in fact what is now happening, although it also means that a portion of the mass in the universe will not reach this critical distance and would indeed re-collapse leaving the outer portion to continue its expansion.

5.16 Last Thought

These last thoughts may be reaching to an extreme, but I close my mind to nothing when trying to deal with the nature of gravity, for until we get a better understanding of it we must keep an open mind. There are many strange things happening in our world that are not explained. They are usually non-reproducible with experiments. They crop up unexpectedly and vanish just as fast. I will only speak of one here. Many people have expressed the feeling that they have experienced some form of communication with another person, usually in the time of stress or peril. They have experienced some event by someone else virtually on the other side of the world. When these other people were contacted many indeed did experience such a happening. We could call this mental telepathy. These types of things are usually rare and cannot be explained, nor can they be duplicated, but there have been many people who have experienced them.

With the above scenario where gravity is expressed in the universe by a thin plane's distortion, one might find an answer to this type of experience. It is quite possible that more than one particle exists on the same plane with other particles, or the planes are linked creating large sheets connecting particles. It is also possible that many particle planes may be aligned with other particle planes producing what one might call the universal string that contains vast amounts of energy but is virtually non-detectable unless you cross that particular point of space that the planes occupy. Here we might ask, if there are electron planes connected to the planes of other electrons what might happen? It might be possible that electron movements in one place

could in effect communicate that movement to an electron on the same plane with it where it could duplicate the movement. In this manner information could be transferred from one place to another through the plane's structure of our particles and the speed at which this could occur would not necessarily be that of light. The planes would also have no physical barriers to stop this information transfer.

To prove this it would take some very sensitive detectors. Our biological structure has some extremely sensitive systems we are unaware of. In this scenario information could be transferred from one being to another with very little energy being expended and there would be no barrier, including the earth, that could stop or slow down the event.

5.17 Conclusions

I have just taken you through a thought pattern based on an extremely simple-minded sketch of nothing more than a dot drawn on a piece of paper. It does show you what a very active imagination can do. String theory has never been visualized, and until it is it will not be solved.

The main thrust of this article is that gravity may not be unidirectional in the microscope world and there is no proof that it is. Scientists a long time ago believed that matter was solid to its core but then learned later it was not solid at all but was made up of smaller particles which seemed solid. Still later they learned that even these particles are not solid. There is a mind set that gravity acts the same at all levels of matter and it may be that this belief is why our theories at some point run into brick walls. Quantum theory and string theory could become one if we break this mind set. Gravity is not one-sided and it is not mythical. Our universe is made up in discreet steps and each step follows a set of laws. Without these laws the universe could not hold itself together and the conservation of energy would not be valid.

This whole exercise can show you how to open your mind and think out of the narrow confines of too many facts which may or may not be correct, to visualize the real meaning of what our math is telling us. You will find many inadequacies and holes in this scenario but you'll also find it very interesting and thought provoking. This scenario does offer many ways of verification and the possibility of concentrating gravitational fields by using the electrical properties of particles. If you could align the plane of electrons you could create a concentrated spatial distortion, but mind you, electrons have very little mass and it would take a vast quantity of them to produce a visible or measurable effect. Unfortunately other particles with more mass would not have the plane's structure or electrical characteristics to create such an alignment. The problem only gets worse the more one thinks about it. The possibility of transferring mass through the plane's structure is there and it immediately brings your mind to the transporter room of the Enterprise, but for now the electron is probably the only particle we could possibly influence in this scenario.

Keep your thoughts running and your vision open when it comes to gravity for only then will we indeed solve this problem. These are my ideas; please send me yours.