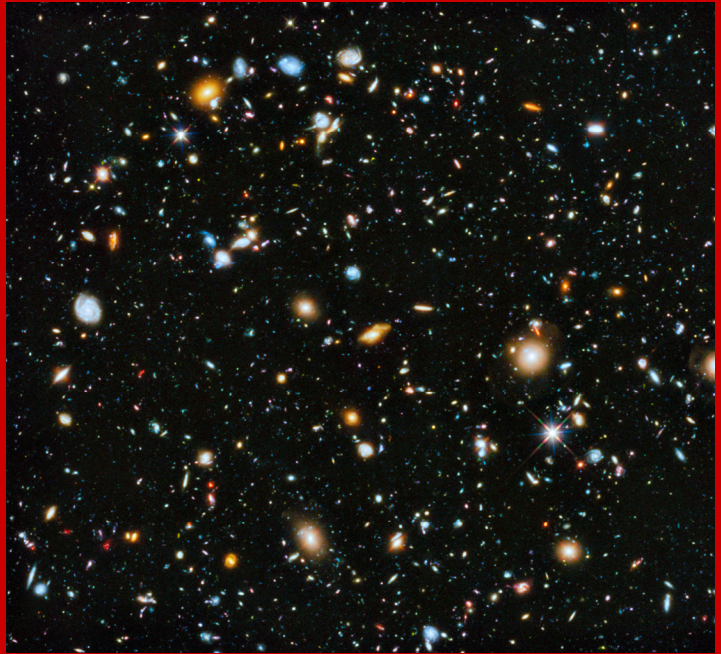




**ANDRÉ LEFEBVRE**

# **The birth and the life of our universe**

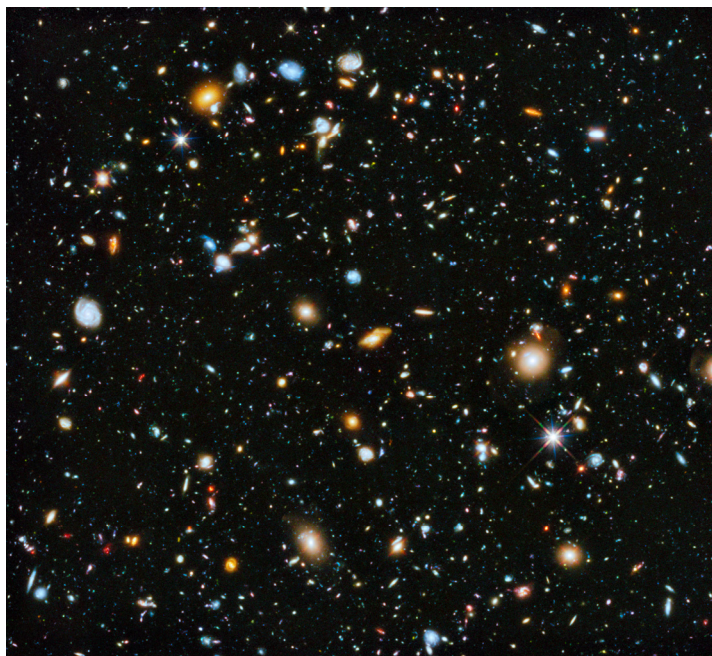


**Essay**

*Fondation littéraire Fleur de Lys*



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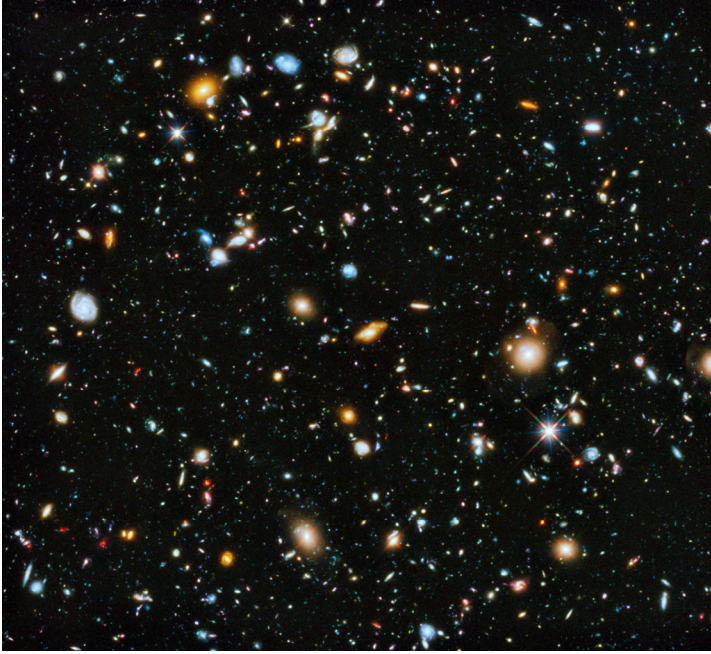






**ANDRÉ LEFEBVRE**

**The birth and the life  
of our universe**



**Essay**

*Fondation littéraire Fleur de Lys*



## *Fondation littéraire Fleur de Lys*

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André Lefebvre,  
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2. A Galactic Spectacle- A pair of colliding galaxies about 62 million light years from Earth. Smithsonian Institution from United States



3. Sword of Orion. 2MASS/G. Kopan, R. Hurt



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# The birth and the life of our universe

***“When you learn about science, it doesn’t request to put your intelligence, imagination and critical sense on “off” position. That is something exclusively commanded by “faith” .***

André Lefebvre





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# Preface

**M**en have been studying the sky for thousands of years, and we still are today. Since a hundred years or so, our technology has permitted us to survey the sky even deeper; we now can scrutinize deep space.

But one sole evidence stems from all that sum of observations: We always have been perceiving the same things since the beginning. And all that we've seen amounts up to volumes and trajectories. Ancient civilizations made interpretations of what they saw, and we do exactly the same. Only the interpretations are different; probably since we have a different way of thinking; because ancient scriptures certainly don't prove that people of ancient civilizations were less intelligent than we are.

Our scientific way of doing research managed to give mathematical values to our interpretations. Today, to follow these scientific arguments, we need advanced mathematics. But we all forgot one important fact which is that all we've seen since thousands of years, are strictly volumes and trajectories; in other words, geometry topics. So, normally, Geometry should be able to explain everything we observe in a way easy to understand for everybody. I, actually believe so.

The following will be my proposal on how to explain the laws of physics, by unfolding the complete history of the Universe to a child, whatever his age is.

I say “to a child” in order not to upset scientists or religious who think that it is impossible to explain the Universe without the help of either advanced mathematics or unwavering faith. They could be right, mind you. But knowing that, not even too much advance maths can prove by  $A + B$  that by subtracting five apples from a bag containing only three, you end up with a bag containing minus two apples. I don’t buy either the result or such a bag of apples. As for religion, since the Universe is “all that exists,” you have to stand outside of it to create it; which sadly puts the creator out of existence. So I’ll stick to logic which children can assume.

In order to do as I plan, I will have to discard whatever fetters, sometimes even yokes, that were imposed on our minds by religion, philosophy, tradition and even science. The only condition I promise to yield to, is logic.

So sit down and try to relax; here we go.

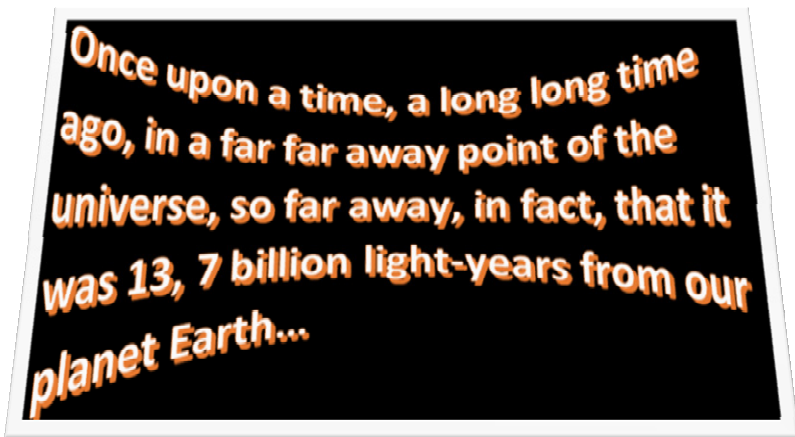


## Chapter 1

# Conception and birth of the universe

A long time ago in a galaxy far, far away...

No; I'm sorry, this doesn't fit at all. Let me start over again....



... something very important happened. That event began the most remarkable adventure, anybody ever heard of. And that's the story I'm going to tell you.

The event consisted in the fact that, at that far away, specific point, something suddenly appeared, just like that, out of nowhere. Exactly! Strictly out of nowhere. Unbelievable isn't it?

But don't be too much amazed; it happened so long ago that springing from nowhere was quite normal at that time; because space wasn't even born yet and, nowhere was actually everywhere.

So, that thing, which leaped out of nowhere, was exactly what was missing: an unbelievable tiny volume of natural, genuine, normal, ordinary... space.



Source: Wikipedia. Modifiée.

Now, let me tell you how big this space was, let's say in meter; it was as big as the 0,000 000 000 000 000 000 000 000 000 000 001st part of a meter in diameter. A meter is even less than a yard; so, that measure, my friends, is so small that no one can visualize such a volume; which means that I had to "zoom in" quite a bit to give you the above picture. In fact, this diameter is the smallest length possible that we inscribe as  $10^{-35}$  meter. Nothing shorter than this can exist. It's called the Planck's length.

But what's amazing about this event, is that this super small mini volume contained all the energy that is present in our whole universe. That was thought right for a long time but will be shown during my story, for the first time, ever, as not been perfectly accurate.

On the other hand, since  $10^{-43}$  sec (the date space appeared after Time = zero) is the time it takes to cover  $10^{-35}$  meter at the speed of light, so it's hard to refuse that the subsequent expansion continued at light-speed, as it had started. Nonetheless, it still was an unbelievably tiny volume of natural, genuine, normal, ordinary space, but possessing inconceivably energy density.

However, one thing is sure: no amount of Ritalin pills could calm down so much energy, in so small a volume.

Consequently, what happened afterward was quite natural. This mini space volume burst instantly; propelling all its manifested energy pieces in all directions. That's when the switch was put "on," and space began to grow.

Today we call that event, the "expansion of the universe"; and it is still manifesting. Yes, sir! We are standing, today, you, me and everyone else, even aliens if they exist, right in the middle of an explosion; there's no doubt about it. The proof is that most galaxies are retroceding from one another due to expansion. The only ones that don't retrocede are the ones that transit toward each other at a higher speed than the ratio of expansion. And there are not many of those, I can assure you. And even some of these, moving toward each other, are doing it too slowly; so the distance between them increases anyway. Did you ever walk the wrong way on a moving sidewalk rolling faster than your pace? Let me tell you; you get home late if ever you do. That's the case with those last too slow galaxies.

The time this bursting event started was  $10^{-43}$  sec; that's a 0 followed by 42 other zeros and then, finally, a 1. This number, once again, is the smallest time-length possible in a translational inner motion volume of the universe. No need to say that at that epoch, you couldn't see time pass. But since the date was later than zero, it is evident that time had existed, somehow, before that moment. We might explain that eventually. Just keep in mind that  $10^{-43}$  sec is the time it takes, at light-speed, to cover  $10^{-35}$  meter.

Apparently, space has kept on growing ever since at the same speed it did at that time; because, as you know, energy can't be produced or eliminated. On the other hand, as we will see, it can transform itself. Let's note that, given last science discoveries, space expansion might be accelerating nowadays. Which doesn't seem possible at first glance, mind you, but we will come to that a bit later, and I'll try to explain it lucidly. It's pretty comprehensive and needless of magical "dark energy."

You have to know that energy, to manifest itself in our universe, has to have, what we could call, a "manifesting support." Because energy is something that is invisible and intangible. You can measure it only

by quantifying its manifestation through a “manifesting support.” Science calls those supports “vectors” or “carriers.” This need is easy to understand because energy is what produces “work”; so it has to have something which will accept to “work,” in order to manifest itself. Any director of an enterprise will confirm that.

Either way, the “manifesting support” which used this initial burst of energy, was a very particular particle. In fact, it came from another world. It had no “mass,” no volume, no electric charge, its spin was on the contrary direction of its motion, it didn’t have its counterpart particle (which is entirely abnormal), and it was never stopped by anything because it didn’t interact with anything or anybody. As you can see, those newcomers were, and still are, a pretty independent kind of particles. Furthermore, there is an almost infinite number of them going around in the universe. Thousands of them goes through your body every second.

No, no; you mustn’t worry; they are not dangerous because they don’t even care about you. As you know, something that doesn’t care about anything cannot be very dangerous; at least, if you don’t take notice of it; this note being taken, nobody ever really cared to count them either; which is understandable since there are so many.

This rather discreet even though all over the place particle was named the “neutrino.” Scientists will tell you that it has a half-spin; and, by Jove, they are quite right. They’ll say, though, that a spin is very difficult to visualize. But to you, the fact won’t need to be visualized; and it will still be perfectly understandable because you will soon find out that the “full-spin” it had before being projected, was ripped in two pieces; so there’s no wonder that they have a half spin. I will explain all this to you, well, right this minute.

By the way, I am surprised that none of you asked me why I said that the neutrino came “from another world.” So, here’s why. Remember when I told you that this particle appeared at  $10^{-43}$  sec? Well, that meant that its origin was even before that moment since it was chosen as “support” of the manifestation. It’s evident that an appearance is not a “creation” or even a “birth.” In other words, neutrinos originate from the period between zero time and  $10^{-43}$  sec.

I know. That consists of a rather small lap of time, but you wouldn’t believe how much could have happened in such a short time interval.

Oh, you would, would you? You mean that you want me to tell you what happened then.

Ok; but I'll have to stop this story and start an even older one. Since you asked for it, let's do it.

At the very beginning of time, when the clock wasn't even striking yet because it was set at zero second and clocks are not made to strike at "zeros," there was an altercation going on in that "no-time, no space, no whatever" universe. And since the word "universe" means "everything that exists," you'll agree with me that it wasn't much of a universe. But it was, nevertheless, something so important, that it is the very fundamental foundation of our universe.

You won't believe it, but that underlying foundation of everything was nothing else than a simple question, which is: "To be or not to be?" No, I didn't steal the phrase. It naturally happened that someone else, before me, thought of that fundamental question of everything. It's nothing to get upset about.

And it was that simple question that was provoking the big fuss between the two solitary opponents existing in that void epoch we're talking about. These opponents were going by the names of Nothingness and Potentiality.

Nothingness was absolutely nothing. And I mean "A-B-S-O-L-U-T-E-L-Y"; in fact, it was so much "nothing" that it even was the negation of itself. One cannot get more negative than that, can it?

As for Potentiality, it was a bit more positive but, mind you, not very much, meaning, barely more. Potentiality could be described as something that isn't at the present moment but might be eventually. So if you're not easily influenced by promises, you'll understand how barely positive Potentiality could have been.

Now Potentiality was having an argument with Nothingness who didn't want, but not at all, anything "to be." I can assure you that Potentiality was getting quite a bit frustrated. So, suddenly, completely exasperated, it exclaimed:

— Ah! You don't want anything to be, do you? Even though, you silly nut, you are here; arguing with me! You don't even have the slightest nip of logic in all of your nothingness. So I'm quitting this meaningless



*discussion with you, and I'm taking a decision. From now on, **I'll be myself, whether you like it or not.** And let me tell you... **That IS final!***

That settled the argument; because, as soon as Potentiality had made this decision, there was no way, anymore, that Nothingness had a chance "to be." So it was eliminated and sent back to... well... nothingness.

By being frustrated so much, Potentiality had gained a tiny bit of energy. In fact, just a bit more than a zero value. So, not being used to it, Potentiality sought to manifest that energy it was experiencing for the first time. The feeling was like it had an intriguing urge to... move; even though it didn't have the faintest idea of what motion was. The main reason it didn't know, was that there wasn't any space existing to move into; which, naturally, means that motion had never existed, yet.

You surely remember that space appeared later than the epoch of this story; so what could Potentiality do to spend its tiny bit of energy that was bothering him so much? The solution came most unconsciously. Since there was no space, Potentiality, turning every which way the problem in its "zero<sup>+</sup> value" conscience, started to rotate on itself without even noticing it.

But we have to be aware that as soon as Potentiality started moving, time appeared and the clock started ticking. With the first degree of rotation (first tick) appeared the first "time length." Now we definitely know that time was created before space, and believe me, all details are important.

Surprised, as soon as it started rotating, Potentiality felt another new funny sensation. Something similar to being stretched in every direction. In fact, this time it felt so frightened, that it wasn't relieved before the contrary feeling appeared at the end of its first rotation. Ooohf! Luckily it almost entirely canceled the scary feeling. You must take note that I said: "almost"; there was still a small reminiscence of worry in Potentiality; but, it was manageable.

So that was how and when Potentiality discovered the two significant effects of rotation; namely: the centrifugal and centripetal effects. But don't ever call them "forces" because they're not, and they despise the brand. They are simply consequences of rotation.

Potentiality, starting its second rotation, was aware that it had gain size by centrifugal effect and was still keeping in one single shape through the consequent appearance of centripetal effect. But that wasn't all; it also sensed that his rotation had adopted a certain speed, even though it hadn't lost any of its urges to keep moving. Potentiality hadn't spent any energy. This sensation was so marvelous that, instead of stopping the motion, it decided to keep on turning. Note that its conscience was also augmenting effectiveness and clarity.

What a surprise it was when it then found out that, just by wanting to keep on moving, its rotation speed doubled at the beginning of the second circuit. At the time, Potentiality didn't know that by applying constant energy propulsion, you provoke constant acceleration. In fact, it was its centripetal effect, following the centrifugal one that was in constant acceleration, thus accumulating kinetic energy, constantly pulling it out of itself. But when that event happened, it discovered that natural physic law and has never forgotten it ever since. In its world, Potentiality had not to project something behind to propel itself; it was existing in the world of energy's origin where this energy couldn't disappear, nor be invariant; it strictly cumulated. At every turn he made, Potentiality was gaining power. And most of all, it was doubling every tour.

It didn't take a lot of tours for Potentiality to suspect the increasing probability that it was going to succeed in its quest for "being." And since "to be" was its primary target, you can understand how glad it became. Therefore it decided to change its name. From now on, it would be Probability instead of simple Potentiality. It felt delighted for the first time. It was so proud, in fact, that it added the qualification of "Mister" to its new name. Its whole name became: Mr. Probability making it, by the same time, a "he" instead of an "it."

And so, Mr. Probability kept on rotating, gaining size exponentially at every completed rotation. Increasing in size meant also increasing in energy. The fact is that the more he added circuits, the stronger he felt. Consequently, the more active he felt gaining size, the more strength his restraining aptitude to stay in one piece, increased power.

At a particular moment, however, he started to sense that something was wrong; and the more turns he made, the more that feeling grew. Suddenly, he felt he was beginning to lose hold of himself. His

power to gain size had gradually gotten greater than his strength to keep in one piece. He was aware, since quite a bit, that there was a different intensity between his urge to grow and his urge to keep together. He suddenly remembered that his urge to grow appeared before his urge to keep in one piece. So he understood that this difference grew exponentially just as both his urges did. But it was now too late; he was, literally ripped in two pieces. The date was  $10^{-43}$  sec.

You can see the process in the next drawing when came the last straw.



One piece of Mr. Probability, the one representing his urge to grow, disintegrated into its composed small energal pieces which were projected in all directions. That part of him seemed to explode, thus adding depth to its previous surface. It disappeared momentarily, because it had lost half of its length, but reappeared instantly as its particles had been projected at light-speed.

As for the other part of him, the one that urged to keep everything in one piece, it did exactly that, and recoiled back to where it had been, reduced as well by half of its length. It started to rotate once more, but as per after a whiplash, meaning in the reverse direction it did before the rip occurred.

At the same time, Mr. Probability, now divided into two parts, found that all the energy of his urge to grow had disappeared with the part projected, dissipating it in all directions. Luckily for him, he still had half of his former energy inside his half-part that kept him in one piece. He soon was aware that, even if that part of himself had reversed the direction of its rotation, he was starting to regain energy at every turn he completed. That gave him quite a bit of relief. And time kept on ticking.

This event is the moment where and when the present story ends, and where the previous one had started.

You certainly remember that the beginning of my first story was the sudden appearance, out of nowhere, of a tiny bit of space volume. Well, that bit of space volume was the half portion of Mr. Probability that was projected in all directions. You can realize that projection in all direction triggers the advent of a volume; can't you?

Ok. But can you also grasp that, if going in all directions produces a volume before it did, Mr. Probability wasn't a volume? I'm sure you grasped this also since you already understood that by rotating, the centrifugal effect was increasing only a surface. But I wanted to make sure.

So now you've learned that before the advent of the three-dimensional volume, existed the two-dimensional surface. But never forget that before starting to rotate, Potentiality was nothing more than an invisible point "promised to existence." Doing so, you just acquire the knowledge of what the three dimensions of space are; which is a lot more than most people do understand today. On the other hand, Euclid, a Greek scientist that lived 2 300 years ago, knew this structure of space perfectly. Luckily for us, we saved our reputation by finding the proof that our universe was Euclidean. Ouf!

So let's come back and continue my first story.

Ah yes! We were looking at the expansion of space.

To that regard, I have to submit you to another test of comprehension. As you remember, I've said that the basic metric of space was the smallest metric possible. And afterward, I jumped to saying that space expanded. But, there's something illogical between those two supposed succeeding events. Can you see it?

— Yes, we can! Yes, we can!

— Ok, Barack, let's have it.

— Since the fundamental metric was more than zero, it just couldn't expand because it couldn't gain half of its size, which is an impossible size to exist. Therefore your expanding event is irrational; if I may say so, Sir.

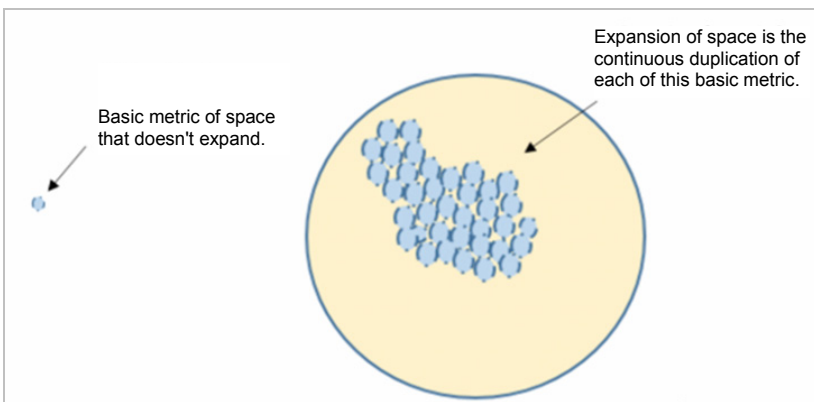
— Geez! You are smart. I'm sure you'll make someone of yourself someday. Furthermore, you are also perfectly right. Let us hope you will always be; even though, I doubt anyone can.

So, since Mr. Probability's half portion couldn't just "explode" as I said, he had to find another way to liberate his energy that wasn't constrained anymore by his other half. There was only one way left; he had to duplicate himself as fast as he could.

His newly freed energy permitted him to move at light-speed, but since he had to replicate himself to keep going, that slowed him down a tad; which made him run at a bit less than light-speed. It's the similar process as photons going through water; they are slowed down because they have to be absorbed and reemitted by the molecules they meet, to get through; which takes time and slows them also, to less than light-speed. Still, each small parts of him had kept the same rotation he had before ripping; so this conserved them their left-handed helicity.

In summary, we are assisting to a constant duplication of counter clock-wise spinning particles that increases the volume of space by defining distances they occupy. Don't forget that each new duplicated particle starts to replicate also and keep on reproducing; which means that the event proceeds at the same pulse everywhere, meaning at almost light-speed.

Let me show you how would have looked an increasing space procedure:

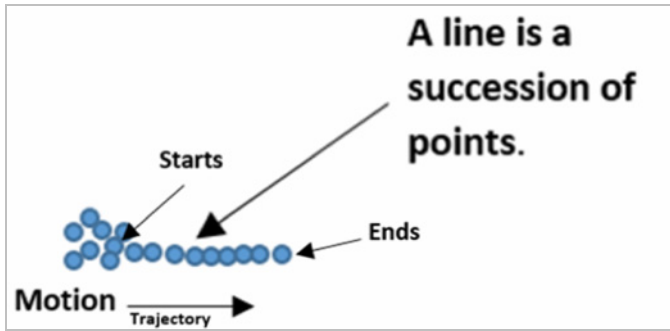


(Yeah; I didn't fill the whole space. So what? You still get the idea, right?)

One consequence of that process of increasing space is that there's no way that the whole volume of space can have a specific center; because you get centers everywhere within each duplicated particles. So now, you've learned why we cannot find a center in our universe. It's simply because the centers are everywhere. I'm sure each of you feels being the center of the universe. But it doesn't make you special at all; everybody believes the same thing.

I know that some of you could say that duplication doesn't involve motion. I'm sorry to say, but then, you would be wrong. Let's find out why, by analyzing what motion is.

Motion is a gradual forward move, made by something, from one point to another. So imagine that the "something" in question, is our fundamental particle that holds the basic length. We already concluded that it had to duplicate in all directions; which means: all around itself. So all is left to do, to see motion, is choose a specific course and follow the duplications made in that direction. You end up with successive points that form a line (PHDs call it a segment) from one starting point to an ending other.



Now, not only have you obtained a motion from one point to another, but you also have defined the trajectory of the motion; which, in fact, is the Time Arrow. So, even though expansion is an act of duplication, this act of reproduction is what motion is all about.

Let's keep on with my story. The expansion proceeded, starting from  $10^{-43}$  sec, by the simple movement called the **radiating period**. Our Plank satellite was able to confirm the existence of that first radiating epoch of our universe. That's another good point for us over ancient times.

It didn't last very long though. Because when the clock stroke  $10^{-36}$  sec, the other ripped portion of Mr. Probability, we had left rotating in the previous surface universe before the explosion, had finally gained the dimension of the basic length possible. So it was now able to appear in our universe. And that, exactly is what it did. That new particle, we call it the Gluon because it tends to glue everything it gets its hands on. Which, you'll all agree, is quite typical to its former characteristic that had always been to keep things together, ever since it was known as a centripetal effect.

Still, by the time our Gluon was at the suitable size, the universe had expanded up to  $10^{-15}$  meter. That is not very big, but, at least, it erases 20 zeros from the 35 of the basic dimension; which is quite an improvement.

We have to admit that now, we're starting to go somewhere.

By jumping in our universe, the Gluon generated a splash that made the universe gain size in one shot. Just like when you jump in a bathtub, you increase the volume of water. Archimedes was the first to notice it in 250 BC; so one point more for the ancients. But our gluon was a surface particle; so the splash wasn't that formidable... at first.

Now both particles in our universe were, naturally, surface particles since each originates from a bi-dimensional universe. You have to remember that Mr. Probability was an expanding surface. Like I was saying, the surface neutrino was duplicating, and the surface gluon joined with it. The fitting together operated by setting one particle perpendicular to the other; which confirmed the three-dimensional volume of the universe. Note that they both were monopole particles; one was magnetic and the other one "electronic". They couldn't unite otherwise than perpendicularly since one was driving freedom of motion, while the other extolled restraint. The uniting of those two particles made our universe an electromagnetic universe. As everybody knows, electromagnetism is the joining of a magnetic field (here a gluon field) to an electric field (here a neutrino field that became an electron field eventually). The neutrino "field" adopted the "size" of the effectiveness of the gluon; so we see it as an electronic field because it's a lot "bigger" than a neutrino.

Now so that you understand the rest of the story, I'll have to clarify up a bit what electromagnetism is. Old people, older than I am, preserve and protect their opinion that electromagnetism is a "force." But since they feel bad when using the word "force," which sounds too magical, they use the word "interaction." Either way, they keep on thinking and using the notion of "force" in their mind. But they won't admit it, unsurprisingly.

The reality is that electromagnetism is only the new characteristic which the universe's space adopted when appeared the gluon; nothing else. However, this transformation into this new nature of space provoked significant manifestations in the subsequent events and still does today. The main one would be electromagnetic waves, which makes light. Exactly; light is made of two surface particles united perpendicularly producing a light wave by vibrating. Note that there's no structural differences between light and all other electromagnetic waves except that our eyes are fitted to see a certain wavelength that we call light.



Source : <https://pixabay.com/fr/vague-concentrique-cercles-de-vagues-64170/>

Just as a wave on water, produced around the spot where you drop a rock, extends in circles around that place, so do electromagnetic waves behave around a particle. Evidently, the particles aren't dropped; but they only have to be excited to create a wave by vibrating. We will come across this kind of incident eventually.

So now we are inside a brand new electromagnetic space where neutrinos duplicate at almost light-speed and where gluons, being massless themselves, are easily following. And, given that this gluon particle jumped in our universe when it had expanded to  $10^{-15}$  meter, the gluon had adopted this available size as the range of its centripetal/gluing effect (which, as we saw, was also chosen by



joined neutrinos). From now on, anything that would enter inside the active surface surrounding a gluon would be prevented from following neutrinos toward everywhere, and would be oriented toward the center of that surface; which didn't mean that it would travel toward that center, mind you. I usually look where I want to go, before making my first step; so would do whatever fell into the effective surface of gluons. This "topology" situation wasn't new since it was, exactly, the same restraining centripetal oriented procedure that gluon used before jumping into our universe.

But then, the gluon itself started to feel the powerful energy of expansion, manifested in all directions. It couldn't resist it and, gluon being a surface particle, its front side was removed from its back side. A surface doesn't have a thickness, so all you can separate in a gluon is its two side's image. Once again, this half part of Mr. Probability was ripped in two pieces; each piece being the mirror picture of the other.

Note that since gluon is massless, they travel at light-speed. So you cannot get in front of a gluon to be able to "see" its "mirror spin". That's why a gluon possesses a positive full spin. Now having both sides of their surface separated, they were subjected to produce a half-spin particle and its anti-particle.

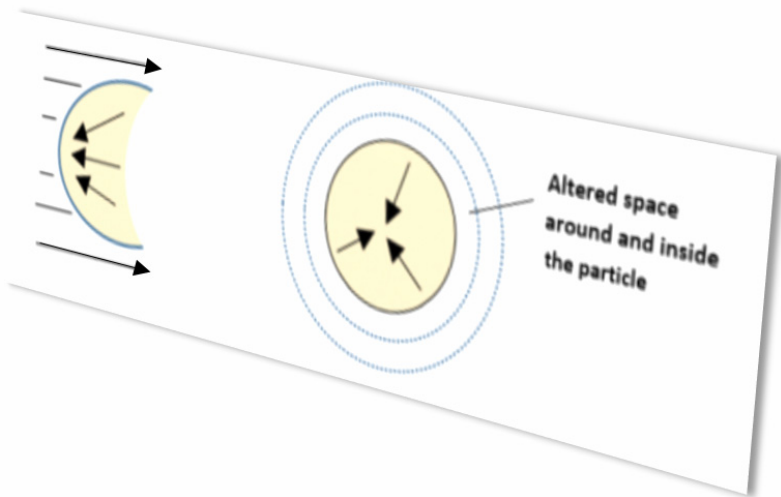
The Gluon didn't have time to complain about the event because as soon as each side were separated, they lost their resistance on one side and both recoiled, pushed back at their center by their own "internal" energy.

This event I must explain a little bit more thoroughly.

Remember that, when the centripetal effect went back and reformed a new surface that started rotating in the counter direction it had before, we said that it had continued gaining energy, which had relieved Mr. Probability? Well that energy, which already had a light-speed value at the moment of the rip, continued to exponentially increase just as it had, since the first rotation that had started everything. So when the gluon jumped in our universe, its energy intensity was not only at the light-speed value as was the neutrino's, but had attained a "light-speed square" value; which is equivalent to light-speed value multiplied by itself. This is an unbelievable amount of energy, but it exists. And it also explains why both sides of the gluon were separated in two.

The gluon had to balance its light-speed square “inner” energy with the light-speed energy of its environment. We will soon see where to find it. As you can see the amount of power, deployed at the burst, isn’t all the energy to be found in our universe, as previously mentioned and universally accepted.

So, with the impact of such energy intensity being released on an unprotected side of a gluon, you can imagine how fast the separated sides of gluons recoiled on themselves, pushed back at their center where such intense energy was targeting. We can say that the effect was very near to instantaneous. This is how it looked:



A side effect also manifested itself at the same moment. By producing two added volumes of new particles with each split surfaces of the gluons, the size of the whole universe was greatly more inflated than it had been by the “jumping in” of the modest surface gluons. Two volumes represent a lot more space than one surface; anyone can understand that. This transformation of half gluons into volumes was a real boost for inflation. It all started at  $10^{-36}$  sec like I already mentioned. But it was not finished yet, as you will see.

First, I have to specify a few things issued from this last event:

1) It wasn’t all the gluons that transformed into volumes; the event happened only 75% of the time; which would mean that the last 25% was devoted to electromagnetism.

2) Those new two kinds of gluon volumes were the mirror picture of each other; meaning that if one was positive, the other was negative; just like a mirror reflects your right hand as if it was a left hand.

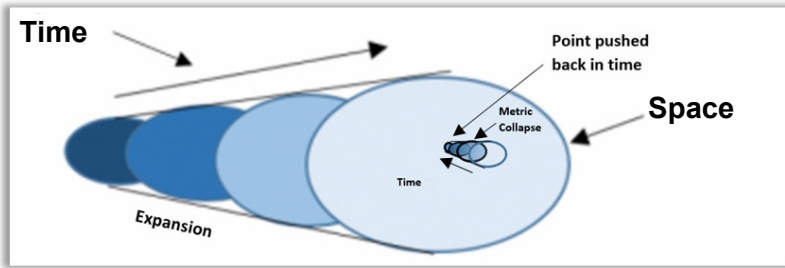


3) The restraining characteristic of the gluon toward its center had become an applied pressure on the unidimensional center point of the new volume; which “altered” a volume of space equivalent to the active gluon surface that we formerly valued at  $10^{-15}$  meter in diameter. That was the space volume affected by the new massive volume created.

4) Those new particle volumes were given the name of Top and anti-Top quarks. They are the most massive quarks of all the fundamental particles. The reason is that they are the only particles that are subjected to so much inner pressure on their center point, because of the energy sent toward that center. Fortunately for us that the density of their environment was also as great as was their “inner” density after being divided in two because we wouldn’t be here to talk about it. The push they would have received then, would have propelled them right back where they had started from; back to Planck’s epoch.

5) That pressure on the central point, pushed Top quarks back “in time,” at an epoch when the metric of “space” was smaller because the expansion was younger. So, as you can see, the said pressure affected time a lot more than it affected space. That pressure on a center of gravity is called “mass-energy.”

This image is space-time with the mass-energy “cave in” description:



From now on, the follow-up to our story will limit itself to what happens inside the Gluon's effective fields, which are now occupied by Top quarks; since nothing else, than the expansion of its metric occurs in the rest of space-time. But, don't worry; there's an awful lot to say about that very tiny period that we just started to describe and that started at  $10^{-36}$  sec after the Time clock stopped being set at zero.



## Chapter 2

# Alteration of space metric, or rather of time metrics?

Fundamental particles are important for just one single reason: they're responsible, and are the components, of all matter that exists in the universe, including... ourselves. So it's not surprising that we give them such a great status. But in reality, in the universal picture view, they are of minor significance.

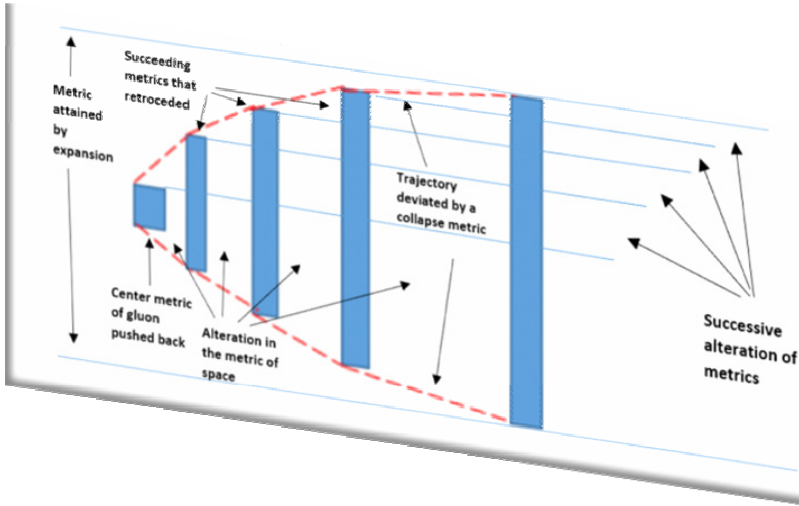
Just realize one simple fact: matter itself occupies only 5% of the whole universe. So we have a universe made of 100% of space, which only 5% is held by matter. It's a wonder that we make such a big fuss about this "matter." But to its defense, we must admit that it does alter quite a bit of the universe's total space. The actual information we have in this regard is that it disturbs about 30% of all space, including the 5% attributed to matter itself.

The real significance of matter lays in the fact that it encloses all the energy, valued at "light-speed squared," ( $E=Mc^2$ ) as I mentioned earlier. The reason is that the characteristic of the gluon particle, which is keeping things in one piece, resulted in confining all that energy in its volume of effectiveness. And we saw that this volume had a diameter of  $10^{-15}$  meter.

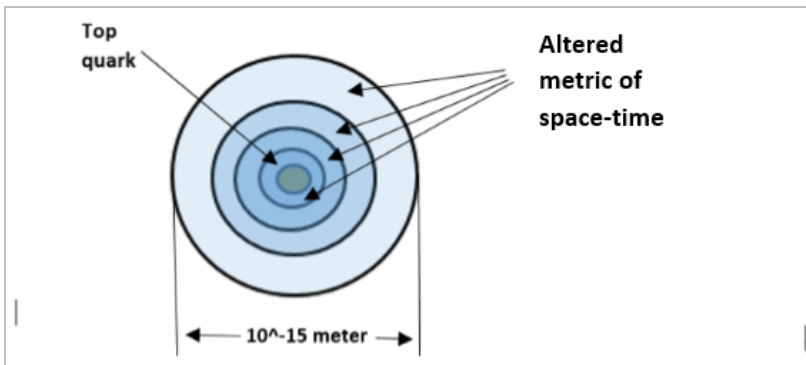
So if you remember the image of the Top quark seen previously, you get the size of the Top quark being less than  $10^{-15}$  meter; but its energy, pushing on its center of gravity, alters time inside and around

itself at precisely the size of the gluon's effectiveness. This is crucial to understand.

As we saw, the center of the gluon surface was pushed back producing the Top quark. "Pushed back" meaning that the center was retroceded on the path it had already covered by the expansion; which implies that the metric it had gradually developed was what retroceded in time. Let's see a drawing that expresses the situation:



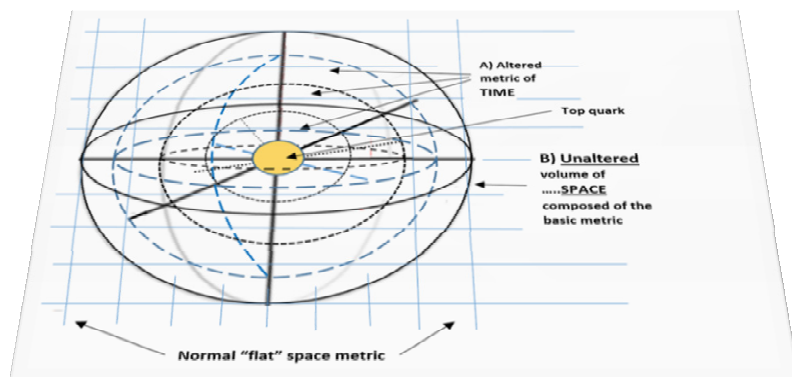
Therefore, if we look at the particle and the space surrounding it, this is the result:



We've now reached the part, a bit harder to grasp I must say, where we have to realize that, what we are seeing is not "space" alterations, but is rather "time alterations." You have to visualize that "time and

“space” are intrinsically included in the same volume of “space-time”; but also remember that time appeared BEFORE space. So time is liable to be affected more than space is, because it is more “settled” in its evolution; we could say. More precisely, distance in Time is not an invariant, while distance in space is.

Here is how it looks. Study this drawing very carefully:



Now is the moment when all of this becomes most interesting.

After achieving awareness that what we are looking at, is an alteration in the time metric and not in the space parameter, we need to ask ourselves what would be the difference all around us, if we would have been born at the epoch of the Top quarks?

Would we find life shorter?

— No; I don’t think so, sir. Because for a Top quark, a whole life is the same as an entire life for us or a mosquito. There’s no way we could find our life being not normal if we were Top quarks.

— I agree. But would events and physical laws around us be different, then?

— I still don’t think so, sir. Events around us are submitted to the energy density of our own environment, and so are the physical laws that control them. The density of energy, at the epoch of the Top quarks, has to be proportional for their events just as for ours. For the simple reason that the dilution of energy density, caused by expansion of space, is the real instigator of all events; which means that whatever the **density** of the environment the event occurs in, the event happening has to be “relativistic.” That’s why I think that events were similar



at that epoch, to what we observe in our own actual age. It is all the same universe with the same fundamental laws.

— It makes a lot of good sense, my young friend; but how, then, can you explain the fact that our scientists are convinced that actual laws of physics cannot apply at the beginning of the universe?

— Those are all lies! My dear Sir. It's as plain as the nose in the middle of a face! Simply Fake information through the media! We are being taken for dumbasses! They think that they can tell us any idiocy and that we are bound to accept it! No way will this continue! I promise you that if ever I'm in charge, things are going to change! And we will take back the power we were robbed of! Together, we, the people, will regain our greatness! WE will Make America Great Again; WEMAGA!

— My dear Donald; I ask you: Could you please get back to your seat, quit gesturing as if there were flies in the room and lower your voice a bit. Everybody here respects your right to speak freely; you know that. So, do as when we discuss together, forget the other gentlemen present here today, and let us hear that sociable tone you can use so well, when you want to convince someone.

— Sorry, Sir. I did let my dynamic nature take control over me. As you know, I hate being taken for an idiot and, even though I apologize, there's no way I'm retracting what I said.

— Thank you, Donald. We're all in agreement with you, as for the accuracy of what is found in the Media; although all opinions pro or con are usually available. Now, regarding the accuracy of scientific information. Can I suggest that the fact of putting values and giving different characteristics to particles, relating to different interpretations, can induce in error and decrease the margin needed to comprehend the total relation values between events?

— If I may say so, Sir, I don't think that the measures supplied by scientific experiences aren't exact. But I agree that trying to understand the universe starting from today instead of from the beginning, would certainly present a risk of making an incorrect interpretation. Notwithstanding the fact that tweaking new observations to bow down to old interpretations, seems to me, quite hazardous. We should have more respect for our advancing technology.

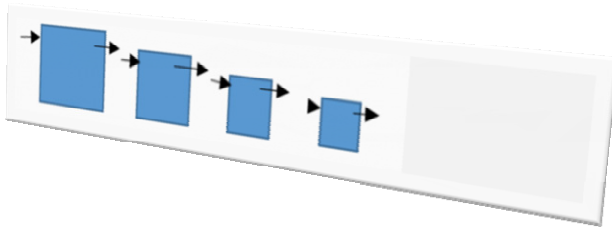
— Thank you again, Donald. So, from what I gathered, we all agree that there's no reason to think that whatever events observed today, would be different from events of the Top quark epoch. In that circumstance, I might as well explain the basics of the gravitational effect thoroughly, since it should have been operative since almost the beginning of the universe. Needless to say that it was the first effect manifested in its history and the universe doesn't have the habit of producing something that doesn't serve; it strictly provides what is needed at the moment it is needed.

So, we have to consider how a decreasing of metric of TIME, would affect events. Let's come back to our last image and see the possible effects.

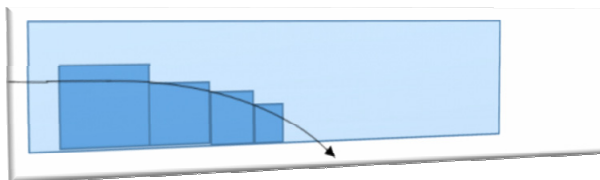
— May I suggest sir that, before jumping in a bunch of geodesic lines, we could have a look at the implications resulting from decreasing space-time? I just have a drawing here that might just help us.

— Much obliged, Peter my friend; please show us and supply the information you have.

— Here it is, Sir:



This first drawing displays successive decreasing metric of space, but could as well be of Time, with points of entry of an object passing through it. Note that the exiting end of one metric is the entry point of the next one. Joining exit points to one another produces the trajectory seen in the next image. Note, also, that choosing entry points would not change the trajectory since they coincide:



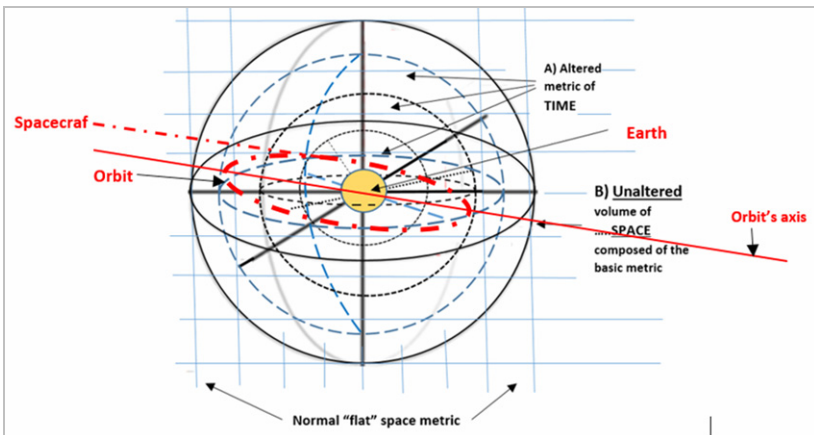
— Your presentation is quite explicit, young man. And I thank you kindly. Let's have a hand for our co-searcher, ladies, and gentlemen.

So thanks to our fellow friend, we now see what decreased metric of space or Time can do; and since space and Time are composed of distances, we observe that by changing distances we alter trajectories. But distances in space are stable; so it leaves only Time's metrics to be modified. Now Time should have the same distances than space, and we can say that by altering the length of one, we would normally change the other. But that is not the conclusion we came to, by modifying Time metrics. It seems that it doesn't imply any changes in space parameter. This observation would mean that Time doesn't have the same kind of "distances" than space has, although it travels through the space distances. How can we explain that?

— I would say, Sir that even though they have common metrics, the Time parameter is related to the expansion's motion, while spaces metric relates to expansion's definite basic volume attained by distances. Which would explain why it is an "attained" distance of space metric that is pushed back in Time, by altering the time parameters. The result would be unchanged in the overall metric of space but significantly changed in the metric of Time.

And if I may add another information regarding the gravitational effect, because we all agree that this is what we're presently discussing, I'd like to use your last diagram which might support my opinion.

— Please do, young man.



As you can see, sir, I've added a spacecraft that puts itself into orbit. The added information is red. What I want to single out, is that the orbit axis of the spacecraft is at the same angle as its entry trajectory; which couldn't be possible if the space metric would have been altered. On the other hand, we know that time length is effectively modified with the distance from the center of gravity of our planet. The only conclusion is that the gravitational effect alters Time metrics without influence on space metrics.

— Just great! Young man. Magnificent demonstration. Bravo! I'm sure you convinced all of us.

— Thank you, sir.

— So, to conclude, even if I doubted we would solve the question, by working all together we did.

— I told you sir: WEMAGA!

— Yes, Donald. Yes, I'm sure we can.

So, is everybody ready to attack fundamental particles? No? Ok then; we will break and pick up tomorrow. Have a wonderful evening ladies and gentlemen.



## Chapter 3

# Time metric or space metric?

**G**ood morning everyone! Are you in shape to ear the rest of my story?

— Yes, we can!

— Yes, we are!

— At least it's not a FAKE story!

— I think we all are, sir; but would it be possible for you, before we start, to hear what I have to say?

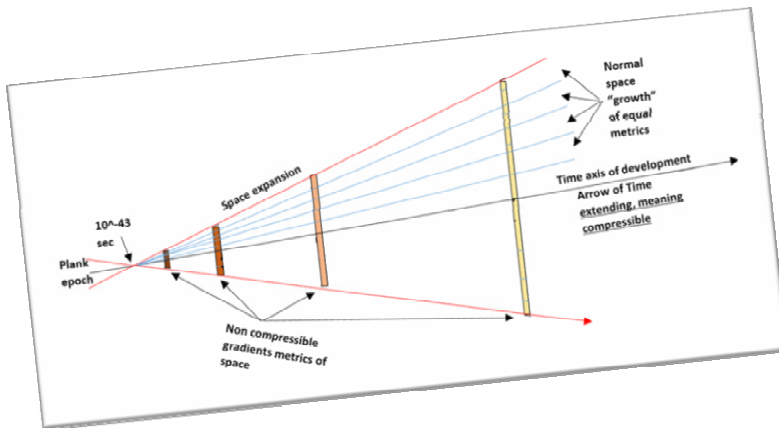
— No problem at all, my young friend. What is it?

— Well sir, yesterday when we left you, a few of us still had a question on something that didn't seem to "fit" in your story. The example of the orbit in line with the axis of penetration was good but didn't seem complete to us. So we gathered at a pub and started to discuss it. We finally were able to solve our problem, and I was asked to present you our solution.

— Very good. Go ahead!

— We made some designs to support our explanation.

Here is the first one:



It describes the evolution of time and space through expansion. Let us describe both by stating what we know for sure.

### Space:

- 1) Space starts at the Big bang, which means at Planck Time.
- 2) Space has a non-compressible basic volume metric (can't be smaller) as much as a non-extendable volume metric. To create space, it has to reproduce (multiply), in all directions and keep on reproducing.
- 3) Space, increasing by multiplication of a pre-definite un-compressible volume, always keep a "flat" topology where a geodesic never can curve.

### Time:

- 1) Time flows, like represented here as an axis (black arrow), in a single direction.
- 2) Time flow starts with Planck epoch and has a fundamental metric that is not a volume as space is; because volume couldn't exist in Planck epoch. It's not even a surface; since it first started right at the beginning; which means with a single one-dimensional point.
- 3) Time flows, but does its metric duplicates or stretches? That was our question.

Due to these “facts,” it becomes evident that since we can observe curved trajectories in space-time, and that it’s impossible that space’s structure permits it, the “culprit” has to be Time.

So, the differences between **Time** and **space** are:

A) Time is not a volume; so this explains why it doesn’t duplicate in all directions, but flows only forward.

B) Time doesn’t have an original length similar to space. It is composed of “one-dimensional points;” which permits to “compress” it to even the moment when it simply disappears.

The question becomes: What can be the consequences of those differences if Time flow is altered?

The only alterations possible for time flow are:

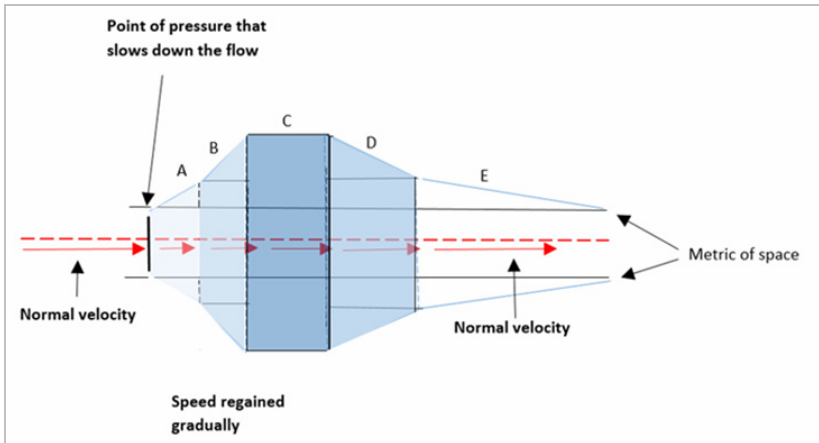
- 1) To slow it down,
- 2) To stop its flow or
- 3) To push it back even until it disappears.

So we’ve checked each event.

No 1: What happens when the time is slowed down, while duplication of space keeps at the same rhythm?

The only consequence we found is that: The space volume around the slowed down time metric, has to inflate; because the rhythm of the multiplying space metrics stays the same.

Let’s see how it looks:



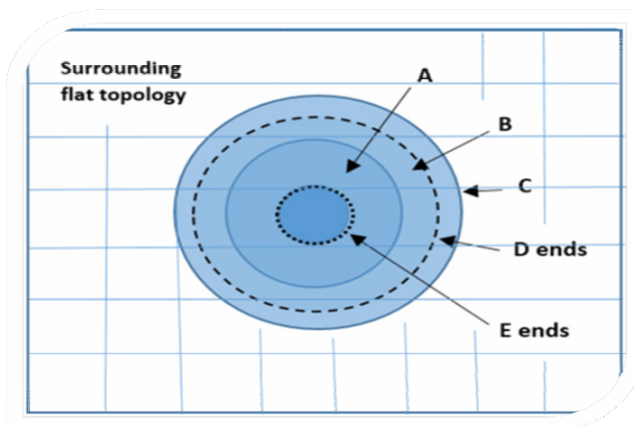


— You did an outstanding job there, my young friend. Would you read your image for us, please?

— I'll be glad to, sir.

- In red (and red arrows) you have the arrow and the velocity of the time flow.
- Then we slowed down the time flow by applying pressure on a metric of Time. As you can see,
- Time flow's velocity diminished instantly, but it started regaining speed gradually. The length of the red arrows shows this gradual acceleration.
- The consequence is that, since the duplications of the space metric keep the same rhythm, it makes the volume of space swell and, at the same time, makes the energy density increase; like in –A and –B.
- Then it stabilizes in –C. That's when the gradual Time acceleration reaches a speed which is equal to the rhythm of the multiplying space metrics.
- And time metrics kept on regaining speed, so energy density and space volume begin to decrease; as shown in –D and –E.
- Finally, the metric of space density normalized itself with its environment (flat space) as it's rejoined with the metric of Time.

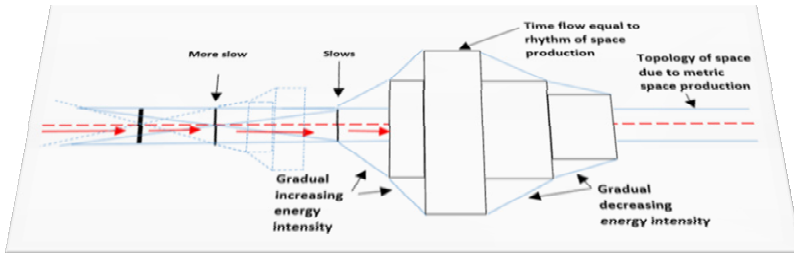
Now if you look at it face wise, here how it looks:



No 2: Stop the time flow. When the time flow is stopped, it restarts instantly and regains speed gradually as in the process we have just seen. We didn't make a drawing since by using the previous one, it seemed clear that the only difference was at the level of maximum space volume and density energy attained; it simply increases more.

No 3: Pushing the time metric back in its tracks. By looking at the same drawing, we could hardly imagine the results. Volume -A, -B and -C gets bigger and denser with energy. But that works until the flow is stopped. The question was: What happens when we back up the time flow?

So we made another drawing:



We see in this drawing that the more we decelerate the time flow, the more increase density, and space; but there as to be a limit. We suspect that this limit will be when Time flow is stopped. Still, the question is what will happen when we back that metric on its tracks.

Is space volume going to shrink and its density decrease? We don't know.

This questioning is the problem we wanted to bring to you, sir.

— That's quite a gift; my boys! I wonder if I'm worthy of it.

— Excuse me sir; can I remark something?

— Yes, Mr. Trump; go ahead.

— My friend Peter here should have invited me to the pub; because I've got an undisputable proof that it's Time and not space that is distorted by gravity.

— You do, do you?

— Yes, sir. A friend of mine owns a gold mine. And when he brings up pieces of gold from 2000 feet deep, the gold nuggets don't get bigger going up; so space is stable.

On the other hand, when he brought down a clock at 2000 feet down, the damned thing didn't keep time properly; so there's your proof that Time is distorted.

— A straightforward and truthful example Donald; thank you. But what did your friend do to keep Time correctly?

— He bought a clock of a better quality.

— That's what I was going to suggest.

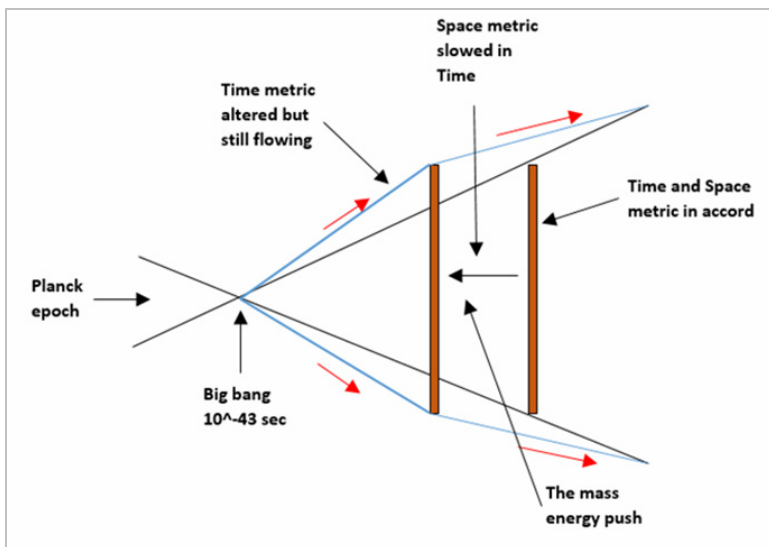
Now let's analyze our friend's last question:

"Is space volume going to shrink and its density decrease?"

It would be surprising that it only shrinks and decreases; on the other hand, we mustn't forget that we are applying additional pressure to push back the Time metric point.

So you've pinpointed a maximum volume (and density) that could be reached, and I agree with you completely.

Here is the way I see it; note that your recent data include themselves perfectly in my drawings:



Now what will happen to that volume of space when we add pressure?

— I should have taught it! Sir; it has to start being compressed. It's so obvious; why didn't we think of it?

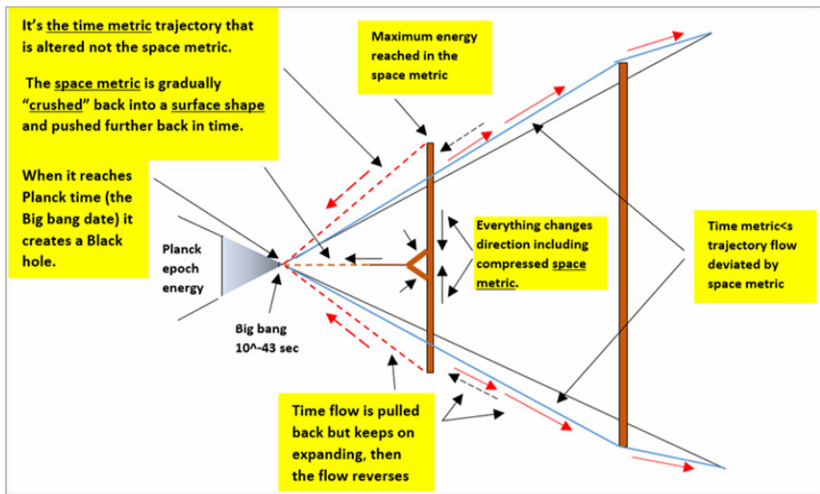
— You should have thought of a Black hole, where matter is so compressed that electrons are pushed inside the protons; which produces neutrons building a neutron star.

Now can you imagine what is going to happen to the metric space and its energy, if that neutron star's boundary is overtaken by the "push" on the time metric?

— If we continue the Black hole process, the space metrics will be crushed one after the other liberating their energy; so the energy density will continue to increase.

— Exactly! And that's the energy we find inside matter valued at "light-speed square." This mass energy will increase the pressure still, until the last volume metric is "flattened," becoming this confuse thing which was designated as a "singularity." It's "singular" only because we don't accept that it's bi-dimensional. No use to mention that such accumulated energy will push back the singularity into the status of Planck epoch, drilling a hole in our three-dimensional universe. That's how a Black hole is produced.

Here's how I think things happen:



Please note that the gravitational effect was, at first, the consequence of the volumes of space metric pushing one another (their weight if you prefer); but once those space metrics start to be “crushed,” there is no way the collapsing process can be stopped. Energy just keeps on being liberated at a fantastic rhythm.

— When would be that moment when time flow reverses?

— What’s your opinion?

— Couldn’t it be when the volume of time metric attains the event horizon described in a Schwarzschild black hole?

— That’s precisely the instant time flow reverses. You’ve got it on the dot, my young friend. Do you agree that there’s no reason that a black hole rotates?

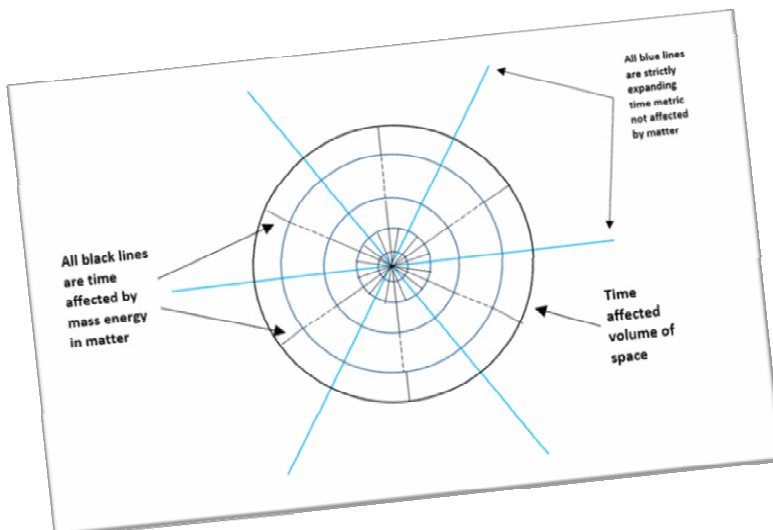
— I can’t see any. Thank you, sir, for your help.

— I’m the one that should thank you for persevering on doubt in your mind; that is all, what scientific research is about. I’m proud of you, young men.

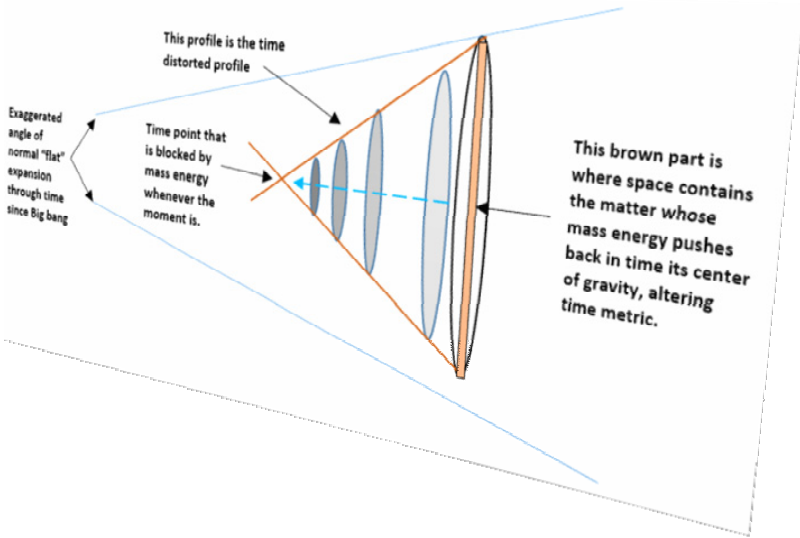
— But before we close the subject wouldn’t it be nice to have proof that space is not curved but time is?

— How can we do that? We can’t see time distortion.

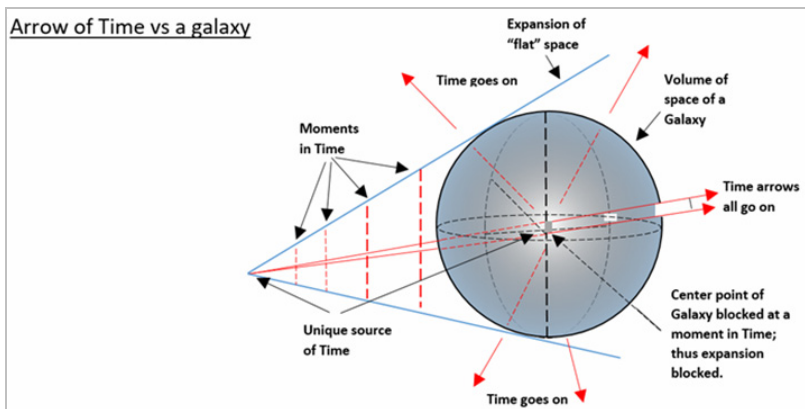
— Well, maybe I can show you. First, let’s see the structure of time distortion caused by mass-energy from the front:



Now let's look at the same thing in profile:



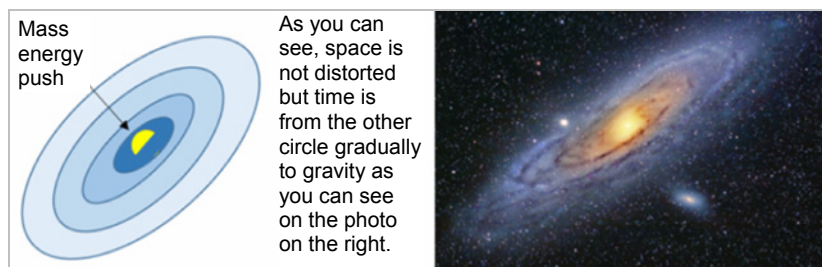
And the one before last, drawing, including a galaxy volume that describes everything. The important detail is to perceive that Time always emerges from a center of gravity. They are the sole source of Time, wherever you find them. You can take your own age as an example: it starts at the center point origin of your existence around which your whole living body gravitates.



Everybody agrees to these drawings?

— Yes; there is no problem.

— Good; because the proof is on the next one. The following is how our time distortion stands in the universe. Here we go:



Personal and Wikipedia (M 31)

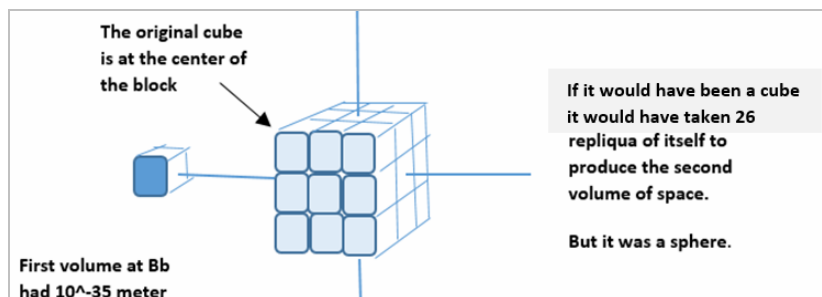
Does that satisfy your questions?

— Great! I didn't expect that sir. We are convinced. Thank you.

Now I wanted to get into fundamental particles, but since you're all so much interested in Time and space metrics, we will carry on by looking at the event of Expansion. But first, let's take a 15-minute break.

### Expansion:

This sketch represents the first « jump » of an expanding space metric cube following the Big bang that couldn't increase, so it had to duplicate its own volume which sums to 27 times the initial volume to surround itself:



Working with cubes don't fit since it can't be cubes that duplicates; so it has to be spherical volumes. But if we want to represent it with cubes, duplication of one cube is two cubes. And this doesn't work either; because our duplicated cube has to be surrounding the original one and since we cannot have a smaller size than Planck length on either side, the original cube has to duplicate 26 times to surround itself.

And even though we use a space sphere, we cannot augment the field with less than its original length all around the previous one. So this would be what it looks like:



As we can see, it takes 6 reproductions of the original to surround it on one face; then we need 1 more in front and 1 other in the back. So the first expansion leap (duplication) needed 8 additional spheres to surround itself. In that firstly expanded universe, we, then, had 9 volumes of the original sphere; 8 of them establishing the circumference of that first expanded early universe.

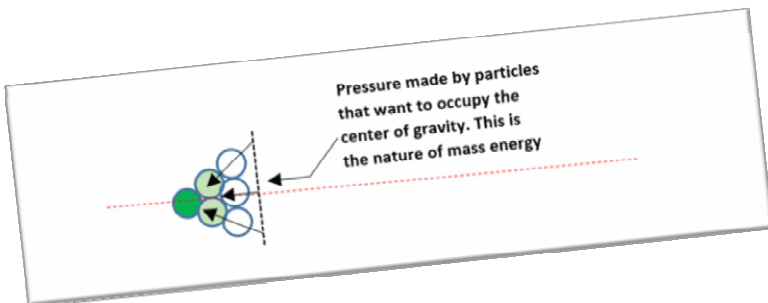
Now, this first layer of duplicates produced a new level of spheres (another greater sphere); and as we can see, added space was created by diluted energy to fill the gaps between small volumes (white in the picture). Remember that afterward, the middle sphere kept on duplicating like the rest of them.

Filling the gaps wasn't done by new energy coming out of nowhere; it was the energy of surrounding spheres that diluted evenly in those gaps; producing a level with less density of energy than was in the center sphere. Remember that we are dealing with "fields" of "space"; there are no walls to contain its energy. If we were considering a nucleus, this would be its first electronic sub-shell. But for now what we are observing is space structured by expansion.

So if we divide the original energy (mass) by 9 we should get the total energy (mass) of the new sphere; because even if 8 spheres diluted their energy, it didn't change the total energy in the overall field.

Surprisingly, when we measure atoms, we find that the whole mass-energy is always less than the sum of the mass-energy of its parts. How can this be so?

To find out we have to make another drawing including space metric and... gravitation:





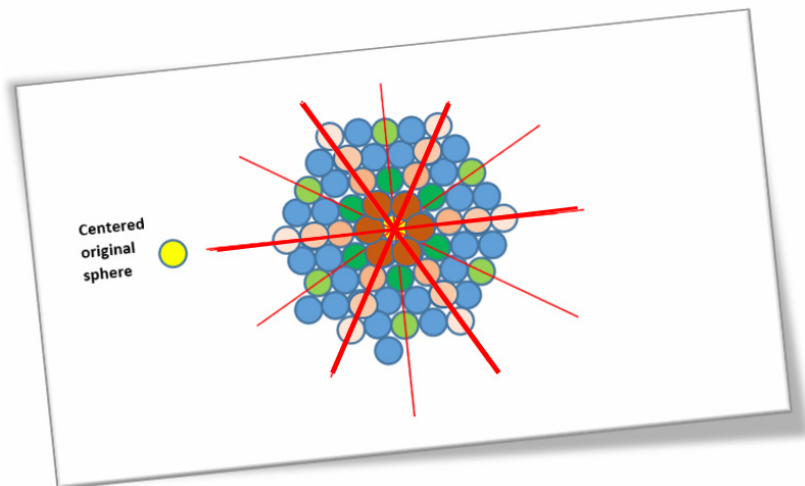
It's easy to see that if we find the mass of either one of the particles, multiplying it by the number of particles will never give us the exact total mass of the sphere. Why is the total less? Because when we measure the mass of one particle, it is never in the situation of suffering pressure from other particles; in other words, we have to take into consideration the increasing pressure that gradually augments the mass-energy density. That gradual density difference is what is called in physics: the "binding energy" that comes from nobody knows where. All this is simple to understand if we make a drawing. Simpler than if we ask a physicist; anyway.

Now, how does Time behave, while space is produced by the continuous doubling of the first and subsequent sphere?

There's one thing of which we are confident. It progresses forward in a straight line and all directions. Let's see how it manages.

The next drawing shows the multiplication of fundamental spheres producing space:

Time pierced through the center of the Plank sphere (center in yellow) and progressed in a straight line. As we can see in the drawing, only some series of the spheres have their center in straight line with the center of Planck sphere. I've put them in different colors. Each color is forming a circle around the center. One series is brownish the other one is greenish.



When I saw this result, I told myself: “Geez! God is a Swiss! He makes clocks!”

Do you realize that we’ve just discovered that Time is not the product of the Earth’s rotation? As you can see, its origin goes a lot farther back than that. The first ever clock of the universe was made with the second layer of space metric and was confirmed by the fourth and the fifth layers.

The confirmations of passive gravitational flow of 2, 4, 6, 8, 10 and 12<sup>th</sup> “hours” were made by the fourth layer and had two metrics in lines with the center. While the energetical expanding flow of 1, 3, 5, 7, 9 and 11<sup>th</sup> “hours” was confirmed by the fifth layer, but had all metrics in line with the center. Pair numbered “hours” seems to “hold back” more than impair numbered hours; at least, it’s easy to see that energy is flowing more directly through those last impair number hours. But I’ll leave it at that, for the present. All I could add is that there’s a possibility that this dispositions of space metric could affect evolution in Time.

Geez! I’ve always been straightforward; so I can’t just leave it at that; I’m sorry. To be honest with you, even knowing you might not believe me, and as much as I want to be rational, I must confess that seeing this result, just now, was a complete surprise, and astonished me beyond anything you can imagine.

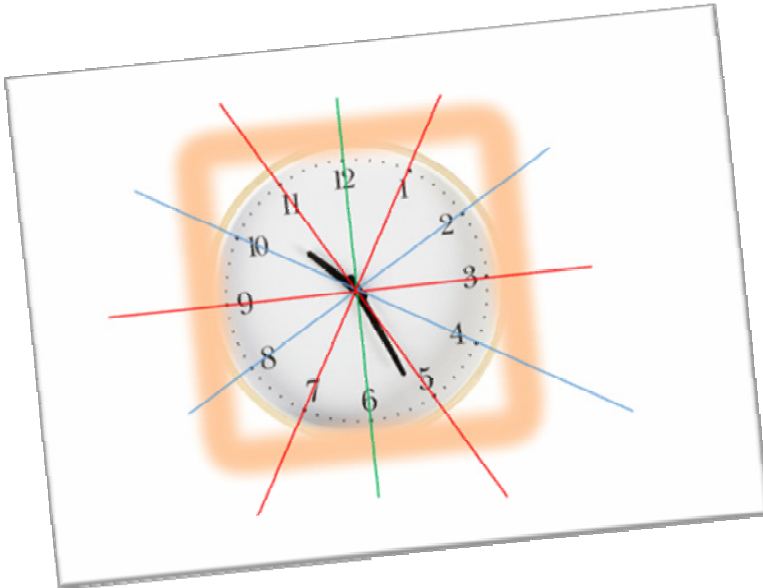
This timelines distribution we just found, exactly represents what I recovered when searching through the ancient Sumerian texts, their traditions and even more on ancient pottery designs from the same region. All these data embodied an Evolution Principle in which the Sumerians believed. I wrote a book on the subject a few years back and titled it: “The secret of the Gods” (in French “Le secret des dieux”). So I’ll need a minute to recover from the shock if you don’t mind. Let’s have a can of soda.

OK! So everything has come back to normal in my head. Thank you for the break.

As we saw on our previous drawing, chronology, or Time arrow if you prefer, stands in the moving straight forward through time metrics, and is confirmed by the displayed layers of space metrics. Like I already said, this could have consequences in the evolution of the universe and everything evolving in it. But that is another facet

of our subject that might be science but is certainly not physics. So we're going to skip that pathway.

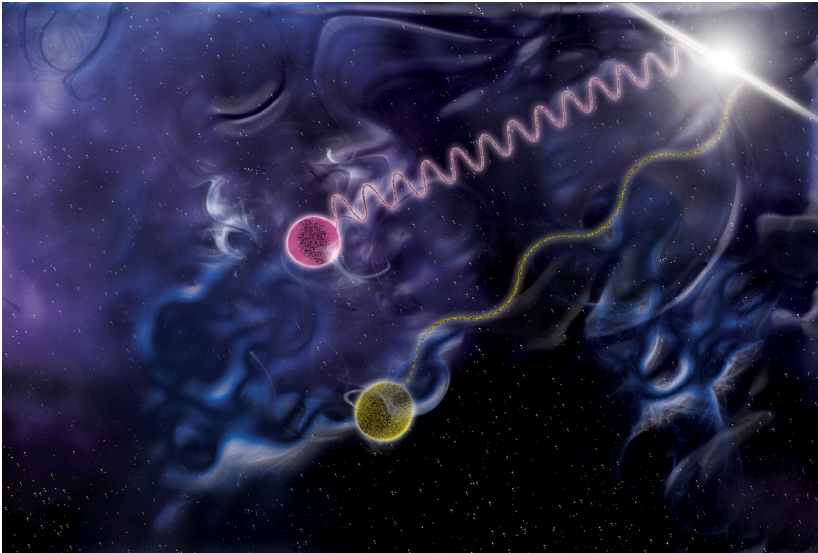
Nevertheless, just to make sure you don't object to the mere "facts" we just revealed, have a look at this and remember that Sumerians were the first to divide a day into 12 portions which each lasted 2 of our hours:



- So what do we do now? Are you ready for fundamental particles?
- Whenever you are, sir.
- Fine.

## Chapter 4

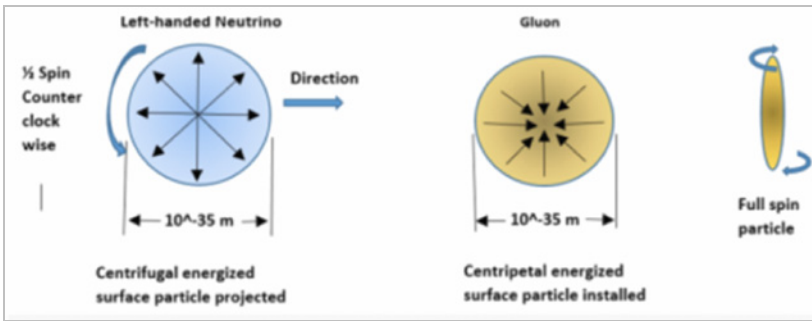
# Fundamental particles



Credit: NASA/Sonoma State University/Aurore Simonnet (Wikipedia)

**W**e were at the point where Top quarks appeared, fashioned from each side surfaces of gluons. And, if you remember, I noted that this event triggered inflation. The time was  $10^{-36}$  sec after Time = zero.

But let's revise a bit and give more precisions on the first two surface particles; which should put our ideas in place. It also may provoke a small surprise to many of you



Neutrinos are “surfaces,”  $\frac{1}{2}$  spin particles and are always left-handed. At  $10^{-43}$  sec after time = zero, they had been propelled in all directions creating “space.” The metric (length) of their diameter is the shortest distance possible which prevents them from increasing in size. The reason is simple; a neutrino cannot increase by any fraction of this basic metric size since those “fractions” cannot exist. But their inner energy, being centrifugal, compels them to duplicate themselves instead of increasing in size. So now it is confirmed that the metric, we have been talking about all this time, is the metric of the neutrino; which makes it easy to relate neutrinos to electron’s “blurred” volume.

Neutrinos travel at almost light-speed. It’s their duplication process that slows them down from light-speed; which gives us the possibility to observe distances (because at light-speed, distances are null) and time (at light-speed, time is “frozen”). Thus, duplicating in “all directions” is what “creates” our three-dimensional observable space volume.

When a neutrino doubles itself, the resulting neutrino starts to reproduce also. All those duplications compose a volume of space that cannot have a precisely located center. Because centers are everywhere in space since they’re inside each of the neutrinos.

There exists a cosmic neutrino background at a temperature of 1, 9 Kelvin while the cosmic microwave background, manifested later, is at 2, 7 kelvin. The cosmic neutrino background is colder because it has expanded longer, but I have to admit that I’m not convinced that this is logical since temperature is controlled by pressure which means energy density. The energy of a neutrino is the total energy

of expanding space which is invariant. The energy density of expanding space, though, decreases according to the ratio of expansion. But even if its density decreases, the energy stays an invariant in the "overall" space, because it's always the same amount of energy that is present everywhere in space, whatever the importance of dilution this energy puts up with. On the other hand, staying invariant in a decreasing density might explain accelerating expansion. It would be the similar process to a Higgs field producing mass, defended by science.

Note that, whatever direction of those duplications you observe, you perceive "motion." Which brings us back to Euclid's concept that says: "a line is composed of a succession of "indivisible" points just as its trajectory."

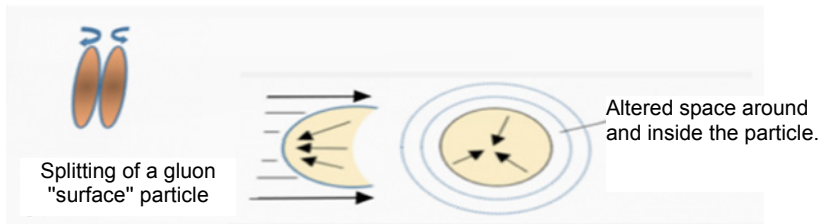
As for Gluons, they also are "surface" particles but have a full "clockwise" spin. They kept a full spin because of their centripetal characteristic they had developed during Planck epoch. Their spin was never dispersed and projected. They disappeared and reappeared continuously, being rotating surface particles (see drawing above).

At  $10^{-36}$  sec, they are introduced perpendicularly to the general "toward everywhere" motion of the expanding universe, with their diameter of  $10^{-35}$  meter, identical to neutrinos. I don't think they stopped rotating though; because their "effectiveness" area is a volume; which can be possible only if the circular surface is spinning.

Contrarily to the Planck epoch, now it's their "inner" centripetal energy that was greater than the centrifugal energy of the neutrino. Having increase energy by rotating longer than the neutrinos, it was now equal to "light-speed square," while neutrino's total energy manifested was only "light-speed." In fact, the gluon had to make one single additional rotation to attain light-speed square energy, since it already had light-speed energy when propelled back in Planck's epoch.

Like their counter part neutrinos, gluons have all an equal amount of energy; but it is "confined" instead of "liberated." Needless to say that their inner energy density is way much denser than neutrino's energy density which, as we know, keeps diluting because of expansion. But, unlike the total energy of neutrinos, that "inner" energy won't be invariant; it will decrease gradually after each subsequent massive particles produced by their decay.

Gluons possess an “internal” topology that creates a geodesic directing everything to its center. That’s towards where all its “inner” energy is oriented. When introduced in our universe, gluons are carried off by expansion in all directions; but the pull is so strong on their two surface sides, that each one is dissociated from the other. Naturally, all "front sides" are the mirror picture of its now separated "back side." This event happens as soon as the gluon appears in our universe at  $10^{-36}$  sec after time = zero. The result is Top quarks and anti-Top quarks particles production, 75% of the time as we have already seen, by recoiling side surfaces of gluons.



As I said, space was expanding, and its energy was diluting rapidly.

Naturally, the inner density energy inside Top quarks was threatening to make them explode. So quarks, needing to “survive,” accepted to release quite a bit of energy. To do so, they had to “open” themselves; which is, as everybody knows, not such an easy task to do.

They did anyway, and so doing, each Top and anti-Top quarks transformed themselves in a successive chain of quarks and anti-quarks, gradually “weighting” less energy density.

*Ladies and gentlemen, it's an honor for me to have the opportunity to present to you, the three generations of our pioneer quark family. Let's give them a heartfelt welcome.*

*Starting with the oldest generation, the very first one that appeared in our beautiful universe, I give you the strongest of them all:*

**Mr. Top quark** = (has about the same mass as 74 protons + 74 neutrons) decays (almost 100% of the time) in a **Bottom quark** while emitting a  **$W^+$  boson**. Then, a bit later, this  **$W^+$  boson** decays into two more quarks (an **Up quark** + an **anti-Down quark**).

*Accompanied by its ever faithful assistant partner:*

**Ms. Anti-Top quark** = decays into an **anti-bottom quark** (*with a mass a bit more than four times a proton's mass or, 37 times less than a Top quark*) with an emission of a **W<sup>-</sup> boson**. Then the W<sup>-</sup> boson decays into a neutrino (exceeding quantum of kinetic energy we already identified) and a **Muon** (*the mother of Miss Electron*).

This decay means that we already have an asymmetry in W<sup>+</sup> and W<sup>-</sup> production of quarks. Those Up and Anti-Down quarks from a W<sup>+</sup> boson will never annihilate each other. This impossibility doesn't mean that they won't be destroyed anyway.

Note that the decays of W bosons proceed rapidly, but less quickly than some following decays. Even though, it's tough to pinpoint the exact time all those decays happened during this short inflation period of the universe. Top quark lives last about a trillion of a trillion of a second before decaying. So it doesn't have time to do much more than... disappear.

The only indication we have for their chronology is their "inner" mass-energy which indicates us their consecutive appearance. The reason is that particles had to adapt to their environment. Now, this clarifies that «it is a process» which is involved; it is not magical, it is not unrelated, it doesn't need exterior Forces, and it is an easy explainable process.

**Mr. Bottom quark** = travels something like 1/100 of an inch before it decays into a **Charm quark (or a Down quark)** and an **anti-Up quark**, plus other hadrons still not identified. It's the only quarks that is as much quark-wise "fruitful." The reason is that as soon as it moves away, it surrounds itself with all kinds of hadrons difficult to identify besides the ones we mentioned as their decay results. Note that, supposedly, 60% of the time, a Higgs boson is predicted to decay into Bottom quarks; but, Bottom quarks are too much "blurred" by their environmental partners to be certain of anything, besides what was strictly identified here.

Note also that the production of a Down quark is less often than the production of anti-Down quark from a W<sup>+</sup> boson, while the anti-Up quark is as often.

**Ms. Anti-bottom quark** = *Travels the same distance as Bottom in a contrary direction* and decays into an **anti-charm quark or anti-Up quark** through the same environmental conditions as the Bottom



quark. Note that another particle is missing here, but I couldn't find which one it was.

**Charm quark** = has the same life-length than Bottom quark then decays into a **Strange quark** 95% of the time and 5% in a **Down quark**.

**Anti-Charm quark** = has the same lifetime as Charm quark and Bottom quark and decays into an **anti-Strange quark** (95%) and **anti-Charm quark** (5%).

**Strange quark** = it can travel meters before decaying into an **Up quark** + a **Muon** + a neutrino. This quark is the wanderer of the whole family. He could be representing the American quest of the west or even more accurately, the French-Canadians opening of all North-America.

**Anti-Strange quark** = has the same lifetime than Strange quark and decays into an **anti-Up quark**, an **anti-Muon**, and a neutrino

**Down quark** = survives forever if inside a proton. Inside a neutron, it can transform into an Up quark after 15 minutes.

**Up quark** = survives forever inside a proton and inside a neutron (*my God! Just look how young he still looks!*).

When Up and Down quarks appeared, the inflation stopped. The time was:  $10^{-32}$  sec.

Now let's have a look at the table giving us the mass energy of each particle which will tell us the chronology of their appearance. I've already put the particles in chronological order:

Particule	Durée de vie	Masse	Spin	Charge	Génération
Quark Top	$10^{-23}$ sec	173,34 GeV	1/2	+2/3	1ère
Boson Z	$3 \times 10^{-25}$ sec	91,167 GeV	1	0	1ère
Boson W	$3 \times 10^{-25}$ sec	80,403 GeV	1	1 ou -1	2e
Quark Bottom	$3 \times 10^{-25}$ sec	4 à 4,4 GeV	1/2	-1/3	1ère
Tau	$2.8 \times 10^{-13}$ sec	1,777 GeV	1/2	-1,6	1ère
Quark Charme		1,15 à 1,35 GeV	1/2	+2/3	2e
Muon	$10^{-6}$ sec	105,66 MeV	1/2	-1,6	2e
Quark Strange		80 à 130 MeV	1/2	-1/3	2e
Quark Down		4 à 8 MeV	1/2	-1/3	3e
Quark Up		1,5 à 4 MeV	1/2	+2/3	3e
Électron	$1,45 \times 10^{34}$ sec	511 KeV	1/2	-1	3e
Photon	Plus de $10^{28}$ ans	Nulle	1	Nulle	3e
Gluon	Stable	Nulle	1	Nulle	Patriarche
Boson de Higgs	$1,56 \times 10^{-22}$ sec	125 GeV	0	0	Après Top?

You will remark that I specially treated the Higgs boson putting it at the bottom of the list. It's because it doesn't have enough mass to supply the Top quark; so I refrain from confirming its status of the mass supplier; especially because I give a more logical source to mass.

All names darkened in this description (previous presentation) are particles possessing a volume. As you can see there was so many transformations and production of particles during that short lap of time, starting with each side of all gluons 75% of the time, that it's not surprising the universe went through an inflation period. Furthermore, other particles, as we will see, were also produced on top of all these. How much was space inflated is an irrelevant question, since we cannot measure the universe today.

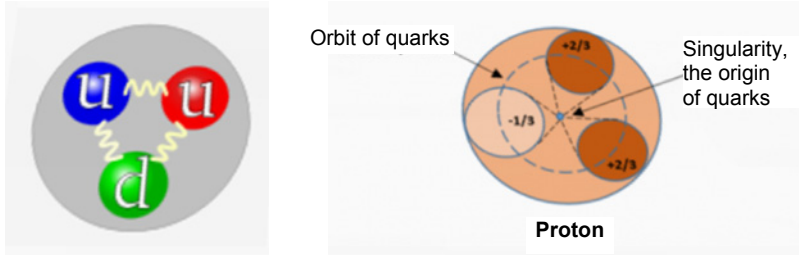
You may have noticed that when mentioning Ms. Anti-Bottom quark, I specified that she traveled in the opposite direction of Mr. Bottom quark. I did it on purpose to explain to you the process of the decaying event.

To do so, I first have to account for the confinement of quarks inside whatever composed particles they will eventually produce.

The following schematic proposes the official idea of a proton's structure where scientists consider that quarks are tied to one another. That opinion derives from their accepted notion of "forces"; namely here: the strong nuclear force carried by gluon bosons.

Alongside that official proposition, I will present the structure which becomes logical when you stop believing in that "magical" notion of "force." We will see the magical side of this concept in the description of the "confinement" status further on.

But first let me explain why I am sure that quarks aren't tied to one another, but are rather bonded to the center of gravity of the proton by gluons.



Source: Wikipedia (proton) and personal drawing

Let us remind ourselves that all the space of our universe emerged from one single original super mini Planck length volume. The origin of whatever followed has to adapt to that same agenda. Because when a process, tried by the universe succeeds, it is adopted, and repeated continuously, always with a tiny bit of “improvement.” So the structure of a proton has to present quarks originating from the proton’s center. Naturally, since quarks are the decaying results of preceding quarks, they aren’t at all, actually originating from the center of a proton or neutron. We do agree on that.

But we will see, in the process of confinement that quarks all originate the same way that our first volume of space did; meaning that they seem to spring out of nowhere, through a “point” that becomes their proper center. And since they have mass; it’s evident that this center of theirs is a center of gravity.

The quarks, to constitute a proton or a neutron, have to regroup in a unit of three associates. And the only way possible to make that association stable is by uniting each of their center points of gravity in a barycenter.

I know; scientists say that gravitation isn’t worth considering at that remote era. But that is plainly illogical from their part; because they also affirm that gravitation was the very first “interaction” (meaning “force”) that appeared in the universe. And we know that anything that happens in this world is ALWAYS a needed consequence from something that preceded. In this case, the appearance of “mass energy.” So tell me why gravity would appear without any required natural evolving effect? That is apparently impossible.

The simple reason for this notion presence in science is historical. Scientists have been hooked on this way of describing the first “force” invented to explain “falling” objects. Even its author, Isaac Newton,

didn't like the idea because it seemed too "magical," meaning "non-realistic"; but, like he said himself: "...but it works so..."

And we have to admit; it did work. It even was the source of pretty great mathematic formulas that are still handy today when "not too precise" results are acceptable. But, since 100 years ago, it doesn't work at all, anymore, as a necessary "notion." Einstein definitively proved that masses do not attract themselves. That anciently supposed "force" just doesn't exist. The gravitational events we observe are purely consequences of a space-time alteration of some sort. Einstein thought that space was curved. We've already seen that it is the time metric, being pushed back on its earlier Time covered trajectory, which generates those effects.

So let us be sensible and proclaim a little bit of maturity: the notion of "forces" is obsolete, and only the concept of "consequences" is logically acceptable in the reconstruction of our universe's history.

Consequently, inside a proton or whatever composed particle, you have quarks that are confined in there, by the gravitational effect produced by each of their mass energy which pushes on that mutual center of gravity.

Now let's deal with the "confinement" phenomenon.



## Chapter 5

# The confinement phenomenon

I don't know about each of you, but personally, I can't pull more than 200 pounds behind me. So if ever you would drop a big long cable in the middle of a parking lot and ask me to pick up one end, put it on my shoulder and walk away, I won't go very far.

Because when I have 200 pounds of cable dragging behind me, I won't be able to go further. You'll notice that the length of cable I was able to drag, forms the radius of a circle in which I'll be able to circulate. Everybody agree?

— It's evident, sir; there's no "Fake" in that statement.

— I'm sure that if I help you, together we can pull it further, sir.

— Thank you Donald, and, yes we can Barack; but I'd like all of you to keep your attention on the circle surface defined by the cable and accessible to my displacements, please.

— We got it; but where is it leading us, if I may ask, sir?

— It brings us to the confinement phenomenon I promise to explain. And that is what I just did.

— Now THAT is a Fake statement if I ever heard one!

— Maybe you understand, sir, but I doubt if we can.

— If you remember well, I said that Ms. Anti-Bottom quark traveled in the opposite direction of Mr. Bottom quark. Since they both originated from each their center of gravity which they united, maybe in holy

matrimony, they both are tied up by a gluon cable to that center of gravity. So Mr. Bottom quark doesn't have to tie himself to Ms. Anti-Bottom quark, because, where ever she goes, she can't go very far, tied as she is to their mutual center of gravity. This "tied to one another" precaution was an unnecessary jealousy worry of scientists; quarks don't fool around.

— So they can't get outside of the volume defined by the radius of the gluon action field. I've got it!

— But there's still a problem sir. What you just said explains the inside situation of a meson which confines one quark and one anti-quark; but what about inside a proton or a neutron?

— What's good for Harry is right for Bobby, my young friend. As soon as you talk about quarks grouping, you know that each is tied by a gluon cable to a mutual center of gravity. Quarks are not "free" particles. So let's come back to those particles that all aim to "survive" by trying everything possible at each of their "present moments" they cross. That will explain everything.

They've tried the meson tactic we just saw, but it revealed not very reliable since it was unstable. So quarks stopped getting united to their antiparticle and started to roam around neighbor quarks. After quite a bit of all sort of trials, they finally found the perfect match: two masculine, strong, Up quarks united to a frailest, but so much agreeable, feminine quark. That match is so perfect that the marital status obtained stays stable longer than the actual age of the universe. They call the particle thus produced: the proton.

There was another combination made with two frail feminine quarks united to a strong masculine one, but that match doesn't survive more than fifteen minutes. Nonetheless, these matches are still existing in the universe. Those groupings are called neutrons. The funny thing in all of this is that, when regrouped in a "bunch," meaning in a nucleus that possesses many protons and neutrons, neutrons are pretty much stable particles. That's if they don't exaggerate their number over protons. We shall see that when we get to atoms.

— I can understand neutrons. But I know a guy, by the name of Bill, who tried it; it got him in a lot of trouble like you wouldn't believe. As for myself, it's no fake news that I'd rather live 15 minutes with two agreeable partners, however frail they may be, than live eternity

with another guy fooling with my couple. Protons might be open-minded but as Dirty Harry would say: "A man has to know his limitations!"

— You might like it Donald, but the way prices are skyrocketing these years, it will soon be the only way a family can survive; by having three incomes instead of two.

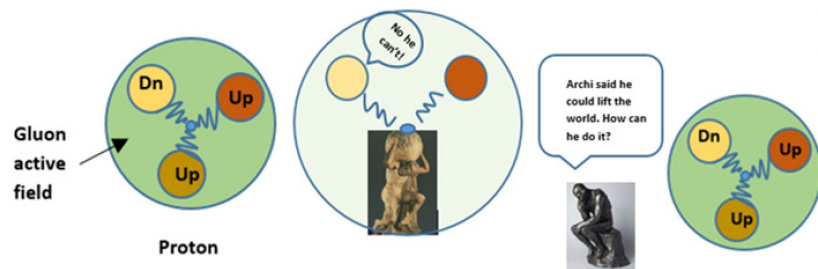
— I can foresee that, even if it cannot happen to me. That's why I'll always do my best to fight for jobs creation, better salaries for people, stop the flow of industries leaving the USA. I'm telling you we will make A...

— Gentlemen! Gentlemen! May we come back to our subject?

— Sorry, sir.

So, let's come back to our "topic." Extracting a quark from a particle is impossible. As soon as you do, another quark appears to replace it, and the one you extracted disappears. That's another wrong statement; in fact, you'll never be able to extract it. Some pretty strong men already tried.

Here is a drawing that gives an idea of what confinement really is:



Source Personal and Wikipedia

— I've got another objection, sir.

— What is it?

— Scientists say that they succeeded in freeing quarks in a quark-gluon plasma.

— Sorry; they couldn't say observing a free quark; that's impossible. What they did exactly was to put pressure on quark-gluon plasma which "gave space" to quarks to move more "freely." That's as if I



have you in a cell of 10 X 10 X 6 feet attached to a chain of 9 feet, and transfer you to another cell of 6 X 6 X 6. You'll be able to move more "freely" because you'll be discarding the length of the chain, but it doesn't mean that you'll be "free," won't it?

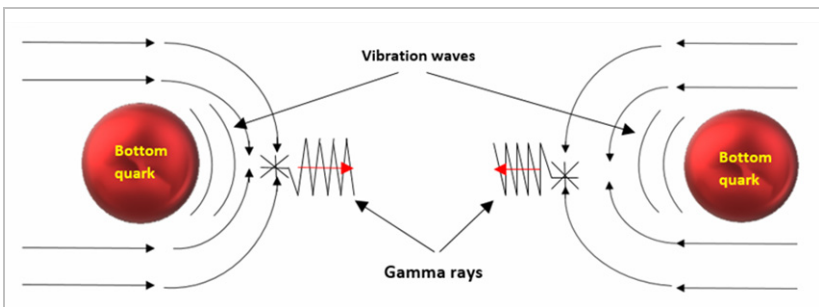
— I see. Thanks, sir.

## Chapter 6

# Electromagnetism

Let's continue for a little while and see what else happened during the inflation period. Well, for one important thing, that is when our universe became an electromagnetic universe, and ever since, events are always related to this fact that became "basis." Let me explain.

When bottom quark appeared, they lived long enough to be propelled  $1/100$  of an inch; which distance was quite sufficient to disturb electromagnetism carried by expansion (going at almost light-speed), and to overtake and to pass around Bottom quarks who were going a lot slower. It couldn't happen with Top quarks since, as we've seen, they don't live long enough and barely travel. So the following drawing shows the event that made our universe manifests its electromagnetism:

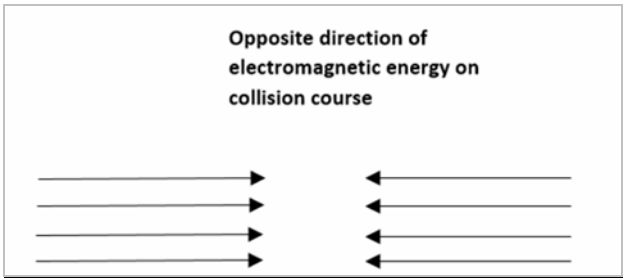


The arrows are the expanding electromagnetic energy overtaking all around a Bottom quark. As you can see, some arrows deviate to the front of the quark; so from one side the energy comes one way, and from the other, it comes from the opposite direction. And I've subline "all around" to make you understand why electromagnetic waves expand in a circle around its source.

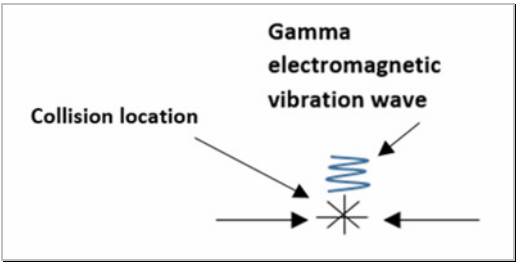
When those two opposite direction collided in front of the Bottom quark, since energy doesn't disappear, they joined and produced a vibration in the electromagnetic tissue of space. That electromagnetic vibration, through such a dense energy environment, manifested itself in what we now call a "Gamma electromagnetic wave" (a gamma ray).

When this collision happened, space had attained a particular metric; and the vibration adopted that metric. So here, more precisely, is what the event consist of:

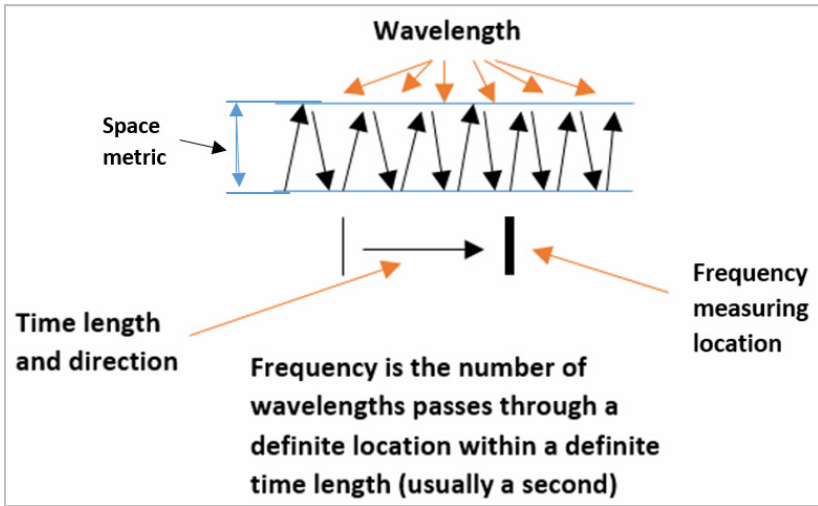
1) Pre-accident circumstances:



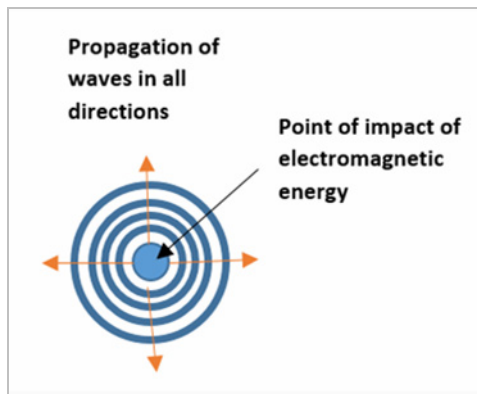
2) Resulting vibration from the collision:



3) And this is how an electromagnetic wave inside a space metric looks like:



Those waves expand the same way as water waves do when you drop a rock in a pond; but contrary to water waves, they lose neither height nor energy. They only change frequency adapting to the space metric they go through. But they drag all the wave lengths changes they went through doing so; giving us the opportunity to see an object in many different wavelengths.



Now we mustn't forget that this electromagnetic wave is a vibration of the invisible electromagnetic "tissue" of the universe. So it cannot be detected until the wave hits something. For example; before it hits your eyes you cannot see the light (waves).

Furthermore, you can see colors of objects you're looking at because their light waves are reflected toward your eyes (like the reflection of the air around you for example). The same process applies for all electromagnetic waves.

Any questions?

— What about different colors, sir.

— Light waves can be absorbed by particles since they are energy. The image your eyes receive is the remaining light waves (thus frequencies) that weren't absorbed by the object hit by electromagnetic waves. The next picture tells you what frequency produces color in your brain.

The colors of the visible light spectrum<sup>[3]</sup>

color	Wavelength interval	Frequency interval
Red	~ 700–635 nm	~ 430–480 THz
Orange	~ 635–590 nm	~ 480–510 THz
Yellow	~ 590–560 nm	~ 510–540 THz
Green	~ 560–520 nm	~ 540–580 THz
Cyan	~ 520–490 nm	~ 580–610 THz
Blue	~ 490–450 nm	~ 610–670 THz
Violet	~ 450–400 nm	~ 670–750 THz

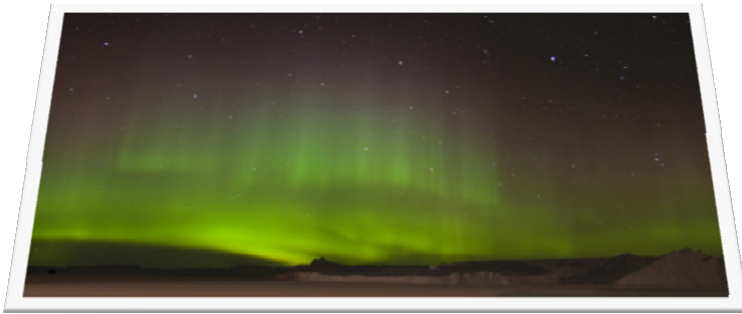
Source Wikipedia

Well, I guess that will be enough for today. We will see something else tomorrow. I'll let it be a surprise.

Have a beautiful evening everyone!

## Chapter 7

# Tau, Muon, and electrons



Aurorae are mostly caused by energetic electrons precipitating into the atmosphere, Samuel Blanc.

I'm pretty sure many among you think we are done with that minuscule period of inflation. Well, think again; there's still something important we didn't talk about.

If you recall, we've understood how gamma-rays were produced around Bottom quarks. The gamma-ray has a wavelength that starts at  $10^{-14}$  meter. And we've seen that the gluon appeared when the universe was expanded to  $10^{-15}$  meter. These measurements tell us that gamma-rays appeared very soon after the gluon. Furthermore, we know that Top quarks decay almost immediately; so our dating of gamma-rays is pretty well supported by facts. Note that astronomy hasn't found the origin of primordial gamma-rays yet. So what we are saying now could be considered as a prediction.

We’ve seen that the electromagnetism energy was propelled through space around those bottom quarks and we established that the universe manifested electromagnetics gamma rays at that precise moment.

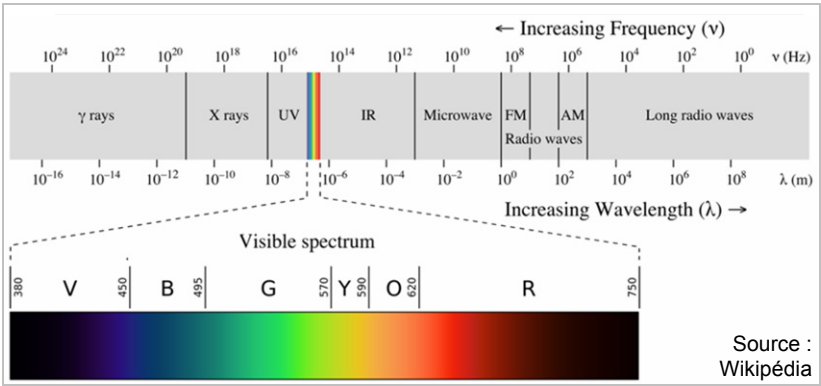
So here we are in a universe still very energetically dense, with gamma rays drifting everywhere. You won’t be surprised if I tell you that a lot of them collided one another. And that’s when things become interesting; because when two gamma rays collide, the result is a production of particles called an electron and a positron (its antiparticle).

May I suggest that the primordial gamma-rays we are talking about, in the environment, they deal in, will produce something a lot more massive than an electron? I propose the “grandfather” of the electron, called the Tau particle. So that moment would be when the electron family appeared in our universe. And space continued to expand lengthening the waves of the gamma-ray.

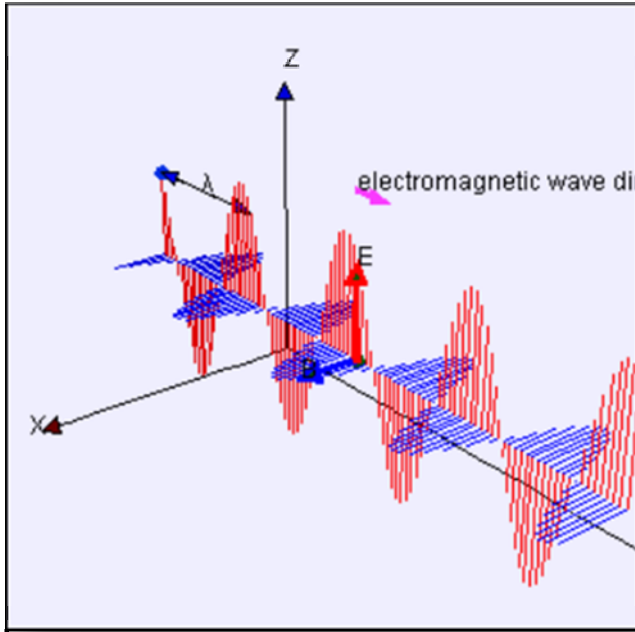
When these electromagnetic waves attained  $10^{-11}$  meter in length (because of space expansion), they became X-rays. We understand that an X-ray has a lower frequency than a gamma-ray; which means that the X-ray photon waves upward and downward less frequently than the gamma-ray, on the same lap of time. Evidently, the Gamma rays penetration power will be more effective and more damageable than X-rays. It’s like using a jackhammer instead of a hand hammer.

So this is how electromagnetism works. The more the frequency, the more powerful (or efficient) is the ray.

Here is the complete electromagnetic spectrum giving you the wavelength of each different rays that exist, including the visible part of the spectrum by our eyes:



And here's how an electromagnetic wave travels through space:



Source Wikipedia: Fu-Kwun Hwang and author of Easy Java Simulation, Francisco Esquembre.

The blue part of the wave is the magnetic field; the red part is the electric field. You certainly understand that the “magnetic” characteristic was supplied by the gluon when it appeared in our universe at  $10^{-36}$  sec. It joined perpendicularly with the neutrino which will attach itself to electrons when “grandpa” Tau, we’ve just seen appearing with Bottom quarks, loses weight density, produces muons, which by losing some more “weight” will transform into electrons. Once again, it’s the energy density of the environment that controls these events.

I guess we finally made it out of the inflation. So; can anyone tell me what we have in the universe at the end of inflation dated  $10^{-32}$  sec after the Big bang?

— I’d like to try if you please sir.

— Go ahead.

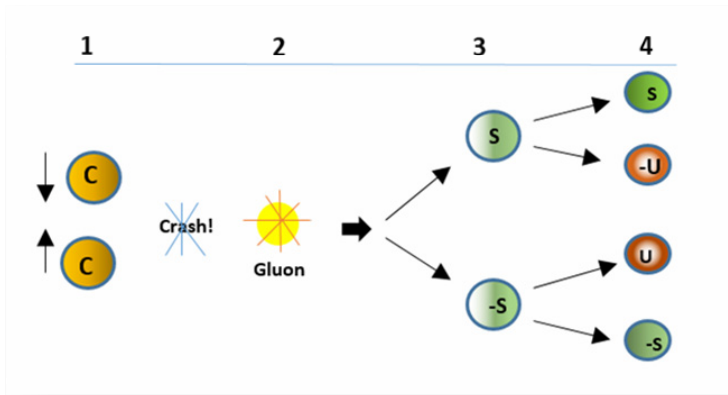


— Well, we have an electromagnetic universe, we have gamma-rays, which means photons and we have electrons and up and down quarks; that's about it I guess.

— What about the others quarks and leptons?

— They're not there anymore since they all decayed in Electrons, Up and Down quarks, sir.

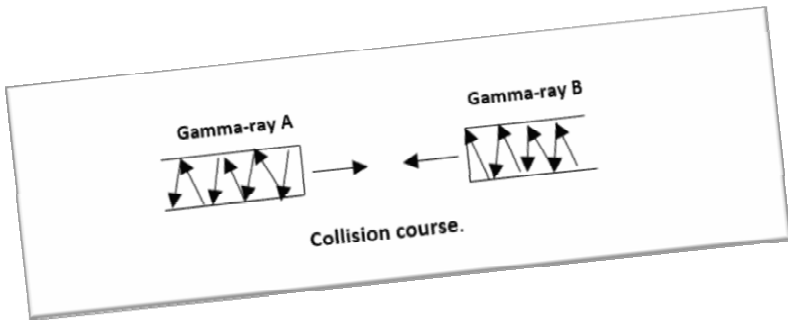
— Very good; you only forgot all the antiparticles and the Strange quarks, because I never mentioned that Strange quarks keep reappearing in the decay process. Here is an example of the Charm quark decay



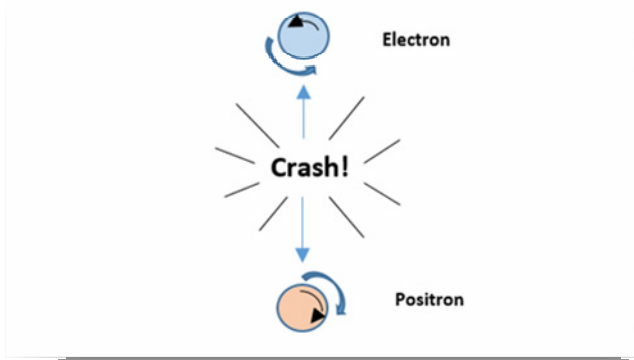
As you can see they appear at no 3 and then reappear again at no 4. Those are pretty strange quarks. By the way, charm quarks also reappear.

So we did it; we came out of inflation with a lot of pertinent information and a great understanding of how the universe was born. But this is only the start; because now we will assist to the productions of the bricks that will construct our small "matter" universe embossed inside altered Time metrics. You must visualize that the time metrics around each particle, present at the end of inflation, are altered except for the photons which don't possess mass-energy. A photon is the kinetic energy of electromagnetism as a neutrino is the kinetic energy of space.

Before we attack production, we'll have a short meeting to discuss the nature of an electron. We've seen that it was produced by the collision of gamma-rays. So let's have another look:



Here we have our gamma-rays on a crash course. Both rays are traveling at light-speed; so when they hit, both their trajectory will be stopped. But they both are composed of up and down motion which are their waves. Let's see what happens:



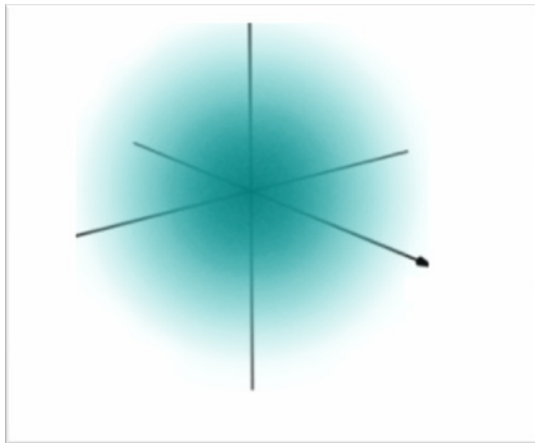
Since gamma-rays are exclusively up and down motion, traveling at light-speed, when light-speed is blocked, all that is left are the up and down motions. And since an up motion cannot join with a down motion when the trajectory is stopped, they are side-tracked; one goes up, the other one goes down.

So, what did actually happen? The logical question is: What can those up and down motions do when their trajectories are blocked, and they are side-tracked?

The only thing I can imagine is that they each become a small quantum of energy and transform their up or down movements into rotating motions, one contrary to the other. One becomes negative (electron) while the other one becomes positive (positron). Those two quantum of energy become simply small “balls” of energy motion, rotating, and they both are projected away from each other because the energy of their blocked wave translation cannot just disappear.

Their rotation gives them a minimal amount of mass energy which is not directed toward their center but is swirling around that non-defined center. This event makes them non-solid particles, a kind of ghost-like particles.

Here is a drawing of an electron. You'll agree that saying it is a cloud, is an excellent analogy.



Source Wikipedia (electron)

The important part of all this is to note that an electron has a “blurred” center, but doesn’t have a center of gravity.

Naturally, it’s the density of equilibrated energy in that cloud, which decides whether the quanta of energy is a Tau, a Muon or an electron.

I am pretty sure that we’re now ready to address the production of our “bricks” of the universe. The production of those “bricks” represents a period of the universe evolution called the baryogenesis. Which only means the production of baryons.

Baryons are particles composed of three quarks. The other kind of particles, not composed of quarks, are leptons. And then, we have those bosons to which scientist attach their interactions (forces).

The strong nuclear force is inherited by the gluon, the weak forces (there are two, one positive the other negative) are attributed to the  $W^+$  and  $W^-$  bosons. Note that on top of these two, there's a third one which is neutral: the  $Z^0$  boson. And finally, we have the photon.

Needless to say that, even if so many bosons were already needed to solve problems, scientists “found” another one, a few years back, called the Higgs boson. This last boson didn't inherit a “force” like the others. It was attributed an altruism duty; which was to give mass to other particles. Since its discovery, things have changed. Today, we believe (but not me) that all particles appeared without mass, and Mr. Higgs boson's field graciously supplied mass to all, depending on their necessity. But now, the question becomes: Whose needs exactly; the particles or the scientists?

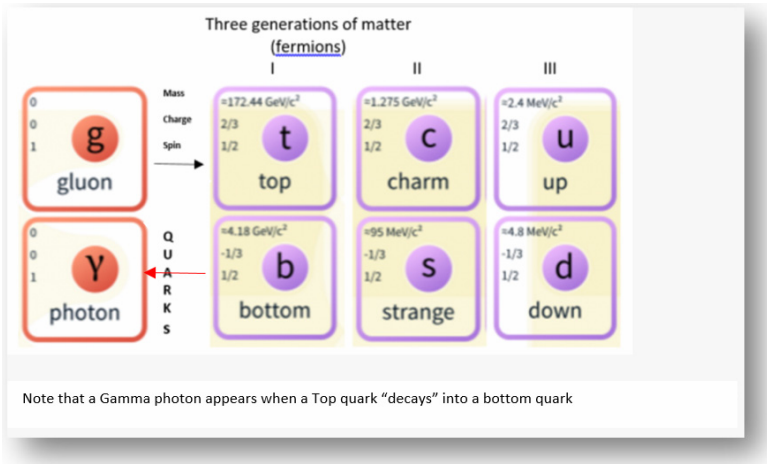
Has for ourselves, we will consider those bosons as quanta of energy that particles have to reject or absorb to stabilize themselves with their environment.

Let's look, for a second, to the official graphic of all the particles we will, shortly, see being used:

masse →	$\approx 2.3 \text{ MeV}/c^2$	$\approx 1.275 \text{ GeV}/c^2$	$\approx 173.07 \text{ GeV}/c^2$	0	$\approx 126 \text{ GeV}/c^2$
charge →	2/3	2/3	2/3	0	0
spin →	1/2	1/2	1/2	1	0
QUARKS	<b>u</b> up	<b>c</b> charm	<b>t</b> top	<b>g</b> gluon	<b>H</b> boson de Higgs
	$\approx 4.8 \text{ MeV}/c^2$	$\approx 95 \text{ MeV}/c^2$	$\approx 4.18 \text{ GeV}/c^2$	0	
	-1/3	-1/3	-1/3	0	
	1/2	1/2	1/2	1	
	<b>d</b> down	<b>s</b> strange	<b>b</b> bottom	<b><math>\gamma</math></b> photon	
LEPTONS	$0.511 \text{ MeV}/c^2$	$105.7 \text{ MeV}/c^2$	$1.777 \text{ GeV}/c^2$	$91.2 \text{ GeV}/c^2$	
	-1	-1	-1	0	
	1/2	1/2	1/2	1	
	<b>e</b> électron	<b><math>\mu</math></b> muon	<b><math>\tau</math></b> tau	<b><math>Z^0</math></b> boson $Z^0$	
	$< 2.2 \text{ eV}/c^2$	$< 0.17 \text{ MeV}/c^2$	$< 15.5 \text{ MeV}/c^2$	$80.4 \text{ GeV}/c^2$	
	0	0	0	$\pm 1$	
	1/2	1/2	1/2	1	
	<b><math>\nu_e</math></b> neutrino électronique	<b><math>\nu_\mu</math></b> neutrino muonique	<b><math>\nu_\tau</math></b> neutrino tauique	<b><math>W^\pm</math></b> boson $W^\pm$	
					BOSONS DE JAUGE

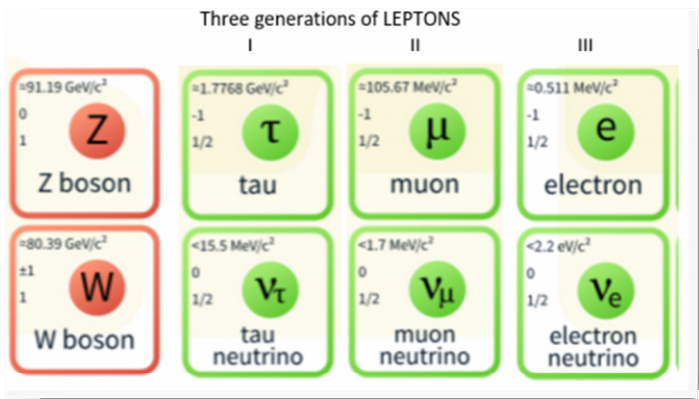
Source Wikipedia

As you can appreciate, this graphic inverts the generation's forward chronology of family as we've seen it. So we will use our own graphic, separated into two parts, which is about the same as the previous one but corrected according to what we have already understood:



Adapted from the previous source (personal).

The "photon" particle presented in this previous graphic is simply the quanta of electromagnetic energy, released by quarks in our electromagnetic universe when decaying to adapt to their environment. In fact the photon quantum "merges" with the electromagnetism of the environment; it doesn't really "travel."



Adapted from the previous source (personal).

With our dating process according to masses, we find that the Bosons Z and W appeared between the arrival of the Top quarks and the bottom quarks, during the first generation of quarks.

As for the neutrinos, their mass is not specified; only the upper margin is. Which doesn't mean that neutrinos have mass; they could "change flavor" (oscillate) by just adapting to the électron, Muon or Tau that they always associate with, or even another unknown factor (or that "oscillation" is related to the fact that they duplicate).

Up until today, scientists know that the sum of the three neutrino masses (if it exists, and you know I don't think they have mass) must be less than one millionth that of the electron. Which means, even 1 million times less than  $0.511 \text{ MeV}/c^2$ . That would be less than  $0.00000000000000511 \text{ eV}/c^2$ .

It is important to know that the existence of a neutrino mass implies the existence of a tiny neutrino magnetic moment, in which case neutrinos would interact electromagnetically; however, **no such interaction has ever been discovered** (but we've seen that they join with gluons to produce electromagnetism).

Currently, the question of whether or not neutrinos have mass cannot be decided. Their speed is indistinguishable from the speed of light. But, it's evident (to us, at least) that neutrinos, to make space "exist" and be observable, have to travel a bit less than the exact speed of light.

Although there exist evidence for a diffuse astrophysical neutrino flux, no "point sources" of neutrinos have been identified yet. Which is normal in a space volume that hasn't any center.

So this is where scientists stand today. Still, their greatest challenge remains to explain how a preference for matter over antimatter was possible during annihilation.

I'd say, we have a lot on our plate for a while.



## Chapter 8

# Mass and weight

**B**efore we start, today, I need to define what are the consequences already developed that we encounter and have to use to understand the following events.

First, what I think we must forget, is mass being a quantity of matter; it is not. It's energy. So there's an essential difference between an amount of matter and mass-energy. A volume of matter cannot deform space down to the center of gravity; mass-energy can push the Time center point of gravity way back to its beginning.

Once this is acknowledged, a lot of things starts to fall together. For instance: gravity gives an orientation toward one precise point. The expansion gives the exact opposite direction: toward "every" point. But both have one single function: to provide guidance to a motion. Furthermore, both seem to be imprinted in the historical fabric of space-time itself.

Those two motions were identified in the result of the analysis of polarisation B by Planck satellite. Where there is matter (high temperature) we see a "focalization" motion (gravity); where there's no matter (low temperature) the motion observed is "dispersion" (expansion).

But let's try a step by step approach. I'll supply proven or logical information that we might not have seen yet. If you have any questions, don't hesitate to ask.



The principal objection we face will be to accept that "gravity" is not universal; it's local. But that doesn't change anything basic to special relativity since it doesn't give an overall picture of the universe but only a localized depiction. The first proof supporting this fact is that our universe as a flat topology.

However, notwithstanding that irrelevant objection we must accept that:

**a)** The quantity of matter does not deform space-time. It's mass energy that does. Based on the following facts:

1) Space-time deformation extends to the center of gravity of that deformation, and not simply around the "mass (quantity) of matter" like the ball on a stretched sheet shows so mistakenly.

2) The "mass" of a proton is formed of 1% of the three quarks and 99% of its inner kinetic energy. So its "mass" is definitely "energy," that I call "mass-energy." Likewise, quarks themselves have "mass" which indicates that their "mass" should also be "mass-energy."

**b)** To increase "mass-energy" of an object made of matter, we have to add matter particles (which possess mass-energy" themselves) on the surface of that object. Then, the center of gravity of the added matter particle adopts the center of gravity of the whole object, thus increasing the mass-energy of the entire object (the added particles pushing, while still "falling" toward that center of gravity, even if the fall is blocked; we could call it: "falling energy").

We can have an idea of the process if we think of what should "feel" the particle in the center of an object when we add weight on the surface of the object. The particle must feel an increase of what is "pushing" on it; which means that the added particle has to make physical contact with the object itself and not merely orbits at whatever distance of the surface. Revealed by:

— A star collapsing becoming either a white dwarf or a neutron star, depending on the amount of solar mass it has (mass-energy); and not how many planets orbit that star.

**c)** We saw that "deformation of space-time" is the result of blocking the "expansion" of the universe on a particular point of the Time flow. The distortion occurs when the surrounding Time continues to extend around the point where expansion is stopped. What stops

that point in its expansion is “mass-energy” which “acts” on the point of the center of gravity.

Based on: all we’ve seen previously.

**d)** Mass-energy, to act against the expansion of space, has to be a “counteraction” to expansion. Since expansion is a “flow” in all directions, mass-energy has to produce an opposite effect. The reverse motion to “in all directions” is essentially “toward one specific point.” The only other motion we observe in the universe, besides these two, is “rotation.” To my knowledge, no other kind of movement exists.

**e)** “Action” and “counter effect” of motion in space-time has to be “encrusted” (imprinted) in the topology of space-time; because it exclusively implies two different directions adopted by movement.

1) Centrifugal movement (expansion/dispersion).

2) Centripetal movement (Gravity/focalization).

**f)** Those two are effects of our third mentioned kind of motion observed in space-time. Meaning that expansion and gravitation are results issued from “rotation” during Planck epoch.

As you will see, parts of Newton concepts were exact. So let’s take what is proven facts:

*"A spherically symmetric body affects external objects gravitationally as though all of its mass were concentrated at a point at its center."*

This description is entirely exact. So let’s do it and place all of its "mass" (energy) at that point in the center.

Now let’s verify the rest of his affirmation:

*«But it should be understood that gravitation at the center of a solid ball is actually zero, as measured from the inside. »*

Newton is right in his concept of gravitation; because he thought that the quantity of matter (is notion of mass) had an “attractive” power. But gravitation does not have any “power”; it is “inert,” being exclusively a consequence of a geometrical issue. If it was not, the “pull” of matter would be reversed at the center of gravity. Either way, he is right again, since the center of gravity is where all objects tend to fall. So when you reach that center point, you don’t

tend to “fall” anywhere else; which means that gravity is effectively zero and doesn’t “pull” anything. But it is far from meaning that pressure is zero. That’s evident, but to make it crystal clear let’s make a “thought experiment.”

Let me be the “guinea-pig” that is going to take place in the center of an amount of ten tons of matter floating in space (I wouldn’t dare ask you to do it).

It’s evident that the gravity of the bulk of matter will result in keeping the volume in one piece. And to succeed, it as to exert a pressure starting from the surface of the bulk down to its center of gravity (as we’ve seen, attraction doesn’t exist; particles are “falling” to the center of gravity). So what do you think will happen to me, if the pressure of the ten tons of matter comes from all sides? Will I feel zero pressure? What does the particle at the center of a collapsing neutron star think of the zero gravity at its center?

As for “everywhere in the sphere,” if I get into a hole of twenty feet deep, and you fill the hole, the earth filling the hole and “falling” toward the center of gravity of the Earth will inevitably exert pressure on me. And even there, I will tend to fall toward the center of gravity of the Earth myself. So wherever in the sphere except at the center of gravity, we have gravitation; mainly because it’s the Time that is deformed. A rock buried 2000 feet in the ground won’t get bigger if you unbury it; it will occupy the same amount of space. But a clock buried at the same depth, will not keep the same time as on the ground surface. The same applies to an astronaut in orbit and his wristwatch.

Come to think of it; I’m lucky we only made “thought experiments” on this subject. I’m not really interested in getting in there just to prove a point. But what was really the danger; mass or weight?

I’m almost sure that some of you think that I’m mixing “mass-energy” and “weight.” The truth is that, officially, we don’t know what “weight” is, precisely; just like neither do we know what is “mass” officially.

Let’s have a look at “weight.”

The most standard definition of weight found in introductory physics textbooks defines weight as the force exerted on a body by gravity. This definition is expressed by the formula  $W = mg$ , where

W is the weight, m the mass of the object, and g the gravitational acceleration". So tell me how we can find the definition of what weight is in a formula where weight is already included? Might as well say that weight is... weight.

Furthermore, since gravity is not a "force that exerts whatever" (so nothing gets pulled), the only thing left in the above description is the "gravitational acceleration"; which means: the falling motion. That would mean that the faster you fall, the greater your weight is. But object, even if they don't accelerate, have weight.

So what exactly is weight?

We know that to measure weight, the only way is by using a scale. But, again, a scale doesn't tell you what weight "is"; it only shows you how much you weigh. So what about the gravity acceleration we mentioned. Let's say that you jump off an airplane with a scale tied to your feet. It's evident that you will accelerate while going down. So what weight will the scale show (not considering the air resistance)?

The answer is Zero; because the scale is accelerating at the same speed as your body is; which seems to settle the fate of the gravitational acceleration explanation. Therefore, we don't have anything left of the official weight "revelation" except what is insinuated behind the word "acceleration," which is: motion.

Let's not take any chances to mix weight with "by standing" effects, and let's go right where the universe is flat. Nothing "falls" where the universe is flat.

So I'm cruising along through space at my proper speed. Because, absolute "rest" is impossible in the universe; Dixit Galileo. Relativity says: "There are no frames of reference which are truly inertial"; which means everything is moving regardless of frame of reference. That also means that my body is animated by its proper speed (kinetic energy) without any exterior cause. Just like Andromeda galaxy cruises at its proper speed toward us (vice versa), regardless of the expansion of the space between both galaxies.

So; while I'm cruising in "Flat" space, I see in front of me, a scale drifting in the same direction but at a slower speed than me, and my feet are gradually getting closer to it.

As soon as my feet touch the scale, a number appears on it. That number represents the difference between my cruising speed and the cruising speed of the scale. This number is the weight I will have in that situation. So weight seems to be a difference between 2 different speeds.

Let's restart the experience but, this time, with the scale slowly cruising towards me. As my feet touch the scale, the number that will show won't be the same as previously. It will demonstrate the difference of my speed with the counter speed of the scale. Momentarily, the sum of our two speed will show on the scale. But here is the catch. When the scale under my feet adopts the same direction as mine, what will be the number it shows?

Normally, the scale adopting my speed will have slowed down my speed by the speed of the scale (in both cases experienced). Does this mean that the scale will then be at "zero"?

Not at all; because my center of gravity and the center of gravity of the scale will have merged; and the scale, instead of continuing going in the opposite direction of my body, will direct its speed (kinetic energy) toward our mutual center of gravity. In the same event, the speed of my body will adopt the same target which will be somewhere inside me, because I have greater mass-energy than the scale has. And so the number on the scale will represent the blocking of the scale movement, by my feet, toward our mutual center of gravity. That will then be the weight shown on the scale in that situation. And it will be the weight of the scale; not mine.

The same process applies on Earth. My body wants to reach the center of gravity of the planet while all the particles that preceded me are blocking my proper speed to get there. My weight is then the result of blocking my proper speed. And it's that "blocked proper speed" that increases the mass-energy of the planet and adds pressure to its center of gravity. My weight is the pressure I make on the ground's resistance that keeps me from getting to the center of gravity of the planet. And when I put a scale between me and the ground, it shows the intensity of my "push" on the planet toward its center of gravity.

As you can see, eliminating the "force that pulls mass toward each other" has far greater implications than we really are conscious of.

As for motion, for me, it is the production of kinetic energy. And the first appearance of kinetic energy takes place at the Big bang with the sudden “expansion” toward all directions (the explosion is not a real bad image except that there was no center of explosion); which I consider one of the three motions existing in the universe like I already specified. After that moment of explosion, the only thing existing in our universe was what is called a “radiance.” There was no matter at all at the time (Planck satellite). No one explained yet what was “radiating.” Some talk about “inflaton” but that doesn’t explain anything since “inflaton” would be the “vector” of inflation. I don’t believe in “vector particles.” Particles are “energy”; which is enough “work” as it is. Furthermore, during that “radiance period” there was no inflation involved; there was strictly expansion.

The first particle that appeared in our universe, as we found out, is the neutrino. It had no mass but had to duplicate which slowed him a bit from light speed. He is the reason why time and distances are observable. Furthermore, we mustn’t forget that the universe at that moment could have nothing else than a “universally flat” topology.

Then around  $10^{-36}$  sec after “time zero,” another massless particle, with energy of its own, introduced itself in the picture. That particle had a “funny” characteristic: the fabric of its “action field” had a topological information directing motion to its center; which was the exact counter direction of expansion. The “bud” of mass-energy had then emerged in the universe, but it had nothing else than the counter direction of expansion imprinted in it; no actual consequences could come from it... yet. One thing it started though, is “inflation.” His sudden appearance and rapid disintegration in successive “mass particles” (everything was finished at  $10^{-32}$  sec), augmented the volume of space just as when Archimedes jumped in his bathtub and inflated its water volume.

Another consequence it had, was the characteristic of directing to its center resulted in that its “field of action” was something completely “outside” or “independent” of the space in expansion. The universe was now composed of two kinds of motion, almost (and maybe not at all) not interacting with each other; although they both had “their own” space subjected to the same Time arrow. They both also were submitted to the electromagnetism of space. Which is the only “level” where they could “interact.” The universe had a

flat topology even when the surface of those massless particles “decayed” in volumes of massive particles. But the surrounding volume of those massive particles had their Time flow altered.

I’m re-explaining all this, coming to the point, later, when “massive particles” either accreted or gained speed just by brushing past each other. I think that that was when proper (individual) movement was achieved by particles.

As you surely have noted by now, my opinion stands on one base only, which is “motion.” That motion that has three ways of expressing itself:

- 1) Toward all directions
- 2) Toward a particular point
- 3) In a rotation.

And since motion is the product of kinetic energy, expansion toward all direction is undoubtedly a manifestation of kinetic energy.

So now, we should be ready to mold our needed “bricks.”

We know that “stability” was not attained by one single fundamental particle in exclusivity (except for the electron which is a lepton; I’m talking of hadrons). As we’ve already seen, hadrons finally gained stability by joining together in bunch of three quark particles. One of these groups became a proton which is the most stable particle of the universe. We don’t know exactly how long it can live, but our actual estimation is  $10^{33}$  years. The next stabilized particle that universe produced is at the next level of particles. The level of the atom; with the iron atom (some say it’s nickel). Curiously it obtained that stability by using the two previous stable particles it had produced: Protons and electrons; but since evolution needs some little imbalance to progress, there was the implication of the neutron, whose lifespan is about fifteen minutes.

What we could have pointed out already, but we didn’t, is that each generation of particles disintegrated one inside the other’s “volume,” starting from the surface gluon boson. So in the end, those generation volumes came out to be inserted into each other like Russian dolls, which biggest doll was the spinning “flat” gluon.

But rethinking about it, I forgot something. We've found out what "weight" was, but we left out "mass."

What is mass exactly?

In truth, we have to admit that nobody knows what mass is. Science has postponed the question by identifying an ejection of a particle at 125 GeV as the Higgs boson that they wanted to find absolutely. The reasoning behind the Higgs boson was to explain mass firstly of weak force bosons, but now it's applied to all the particles. Then again the explanation isn't very satisfactory intellectually because mass is the consequence of the great density of a Higgs field. The explanation would be acceptable if, at the date when that field is supposed to exist, the universe itself had not an "inconceivable" density; which demands to the Higgs field to be denser than density inconceivable.

With the density of the universe at the time, there is no need for the Higgs field density to slow down particles giving them "mass." Which, anyway, is rather a funny concept of mass and inertia. Furthermore, if density gives "mass" to weak force bosons and, those bosons act almost as photons, why wouldn't those weak force boson particles be the "massive photons" of that epoch? Massive photons are predicted but never were observed. It would be a good occasion for a barber to come over with is Ockham's razor, I think.

But we do know that mass is a form of energy ( $E = Mc^2$ ); have you noted the " $c^2$ " which means "light-speed square"?

The other thing we know is that energy transforms itself into different forms of energy. So the question is: Mass is the transformation of what form of energy?

To put the finger on the answer, we have to define de characteristics of mass; and the one characteristic that is important is that mass deforms space-time; to do so it as to be "energy" that "acts". And the deformation results in a topology that sends everything toward one point: the center of gravity. We have already concluded that mass-energy affects Time rather than space.

A topology (or direction information) toward one specific point of Time in the past is exactly the reverse topology (contrary direction information) of expansion, which sends everything in all directions in the future.



So both these energies are the same energy, meaning that their difference is merely in the direction of their motion. One toward everywhere to the future (time flow) and the other toward one specific point in the past (a center of gravity).

The question now is why don't they respond to the same topology?

To find that, we have to go back to the Big bang, where the movement that manifested itself was directed toward "everywhere" (and the formidable temperature was the consequence of so much energy in such a small space volume). That was the beginning of the expansion of the universe toward the future. At the time there were no particles except the neutrinos. That universe was one exclusively of a "radiance" of energy.

Then appeared the first "virtual" particle related to matter: the gluon. We've studied the gluon thoroughly already. Inside a Gluon, direction is given toward one specific point (centripetal effect); that's why it seems to glue quarks and protons and neutrons together. They all want to get to the center of gravity; like everything else in a space-time deformation. What is new is that the said center point is pushed back in the past of the rest of the particle and its surrounding. It's now difficult to keep on saying that gravitation is universal; because then, the expansion would be stopped and the universe wouldn't have any future at all.

Needless to say (but I'm saying it anyway), I prefer this idea of topology instead of "strong nuclear force" which comes from nowhere to explain the gluing action of the gluon. Mainly because it's natural, it's simple and proven a "fact" by the effect of gluons. Furthermore, thanks to our advance technology, we have a lot more information now, than what was available in 1935, when Yakawa and others, suggested a strong nuclear force, to keep ordinary matter stable.

I agree that this idea eliminates one of the four fundamental forces, but gravitation isn't a force either; it's a "consequence of, previously, space but now, Time deformation." So the "super-force" (unified forces), instead of being a combination of 4, like before Einstein who eliminated the "gravity force" making them only 3, is now left to 2.

So what? Some day we will be able to eliminate those last two somewhat “magical” forces by an observed natural and straightforward consequence. Especially since they were already joined in a single force called “electroweak force.” That’s my prediction.

Furthermore, that notion of “forces” coming out of nowhere, is 328 years old. And even its owner, Isaac Newton, didn’t think the idea, that masses attracted to each other without a physical connection, was an acceptable notion; but like he said: “It works; so...

Let’s have a bit of history to explain the way that concept evolved in the minds of scientists. After the “gravity force” in 1687, the “electromagnetic force” was discovered in 1860. The notion of “magical” force, coming out of nowhere, was definitively implanted in the mind of people since 227 years.

In 1915 Einstein tried to eliminate that magical notion in proving that the force of gravity was simply the consequence of a deformation in the space-time geometry. He didn’t get any Nobel Prize for his discovery and the only concession made to his new notion was to change the word “force” by the word “Interaction.” So scientists were now using the word “interaction”; but very few, while doing so, were not “thinking” the meaning of “force.”

Twenty years later, Hideki Yukawa came up with a new “force”: the nuclear force with mesons being the vector of the “force” responsible for the “interaction.”

In the nineteen sixties (I was twenty some years old; geez Time flows fast!), Glashow, Weinberg, and Salam devised the electroweak theory. The weak force theory wasn’t very solid yet. With this new theory, some other characteristics of the weak force were perceived; and three bosons were attributed to that “force”: the Z, W+, and W- bosons. But even today, the “action” of the weak force, is rather “blurred” inside a proton/neutron particle. Strong and weak forces kind of overlap their influences.

In the late sixties and seventies, Murray Gell-Mann and others discovered the existence of quarks; which gave birth to quantum chromodynamics. This theory added substance to the weak force by distancing it a bit more from the strong force in specifying that the strong force was involving “color” to quark particles, leaving “flavor” to the weak nuclear force.

Mainly, the weak force came about when Beta decay (a type of radioactive decay) was observed in the transformation of a neutron into a proton, in the 1950's. But the idea was put up in the 30's. That form of decay emits either a positive or a negative boson which are  $W^+$  and  $W^-$  bosons. The  $Z$  is the Zero electric charge boson included by Weinberg. Those three bosons are also called: "the intermediate vector bosons" which kind of indicates the "blurred" effect they have on particles. It's normal to think that what is "intermediate" is never clearly defined. Everybody can understand that.

Finally, come to think of it, the "Grand Unified Theory" (GUT) could be the result, not of unifying fundamental forces, but simply eliminating them from explanations in physics; which is my goal.

When we think of the topology (toward the center) that we observed inside the "action field" of the gluon, we perceive that both strong and weak nuclear forces become irrelevant to explain the physical "facts." There are problems toward the existing theories though; because gravity doesn't work in quantum physics. It doesn't say if space-time deformations don't apply though; especially if we take into consideration the pressure of density in their environment. In fact, it says it applies to "fields"; so it has to apply to a "gravitational field"; whether scientists want it or not.

On the other hand, our concept of a gluon explains perfectly the nature and the origin of mass energy and matter itself.

— Excuse me, sir?

— Yes?

— Are we to start with the fundamental particles tomorrow? Because if we're not, I'll find something else to do.

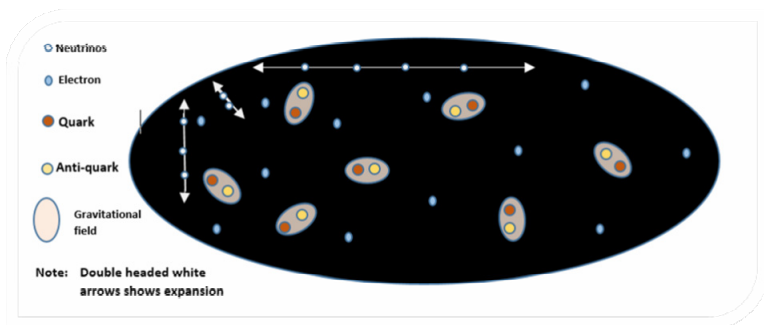
— I promise that tomorrow will be the D-day for elementary particles. See you then my friends.

## Chapter 9

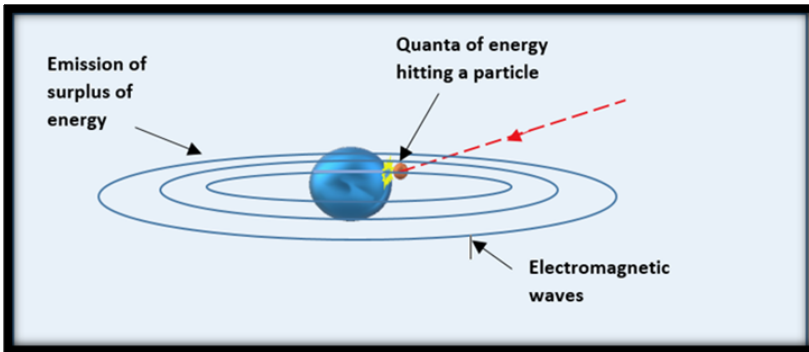
# Scientific D-day

We were at the end of inflation. We will, as promised, attack the elementary particles. As a result, we stand in an electromagnetic universe that has neutrinos, Up quarks, Down quarks, Strange quarks (contained in a gluon “soup”), electrons,  $W^+/W^-/Z^0$  and photons bosons (when called for). And they are all traveling through space made by neutrinos on its forward propelling Time line. The date is  $10^{-32}$  sec. Note that the “soup” of quarks we’re talking about (quark-gluon plasma), represents the density of the “altered Time/space” volume containing quarks; inside their “soup,” they are not inaccessible to other particles mentioned since they’re simply inside a “gravitational field.” So you can forget about the “soup.”

Let’s try to perceive the situation with a drawing:



We mustn't forget that this universe is electromagnetic. As you... cannot see... any electromagnetic waves, since there is no presence of collision event that could make the universe's electromagnetism vibrate like so:



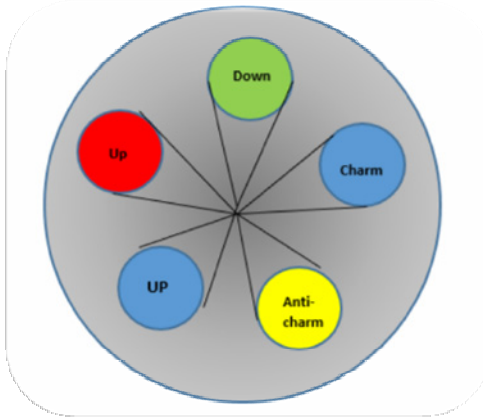
I'm sorry I didn't include Higgs boson in the first drawing. The reason is that I couldn't find a darker black to represent a Higgs field denser than this black universe. ☹

Everything in this dark world is agitated, moving around in each their proper directions; these individual motions were adopted while particles were decaying; even though quarks never came out of their limited boson field.

At  $10^{-12}$  sec, a disaster must have happened. Particles and antiparticles seem to have begun to collide and eliminate each other bursting in gamma ray energy. At the end of the calamity, there were only particles left; all antiparticles were obliterated. At least, we cannot find any traces of antiparticles anymore today.

This fact means that there must have been an asymmetry in the production of particles and antiparticles. But no one found yet, how this asymmetry could have occurred. Furthermore, there's no major gamma ray energy observable today. So questions remain on the subject. Personally, I suspect the Strange quarks for no other reason that it is "strange." I admit it's not logical (you caught me once on this one; ok), since that, when a strange quark was produced, usually, a strange anti-quark also was. But if ever I decide to look deeply into it, I'll start with the strange quark. Anyhow this mystery still lingers today.

Another solution that seems to make sense would be the regrouping of exotic hadrons before the cataclysm. A few of them have been discovered since 2014. Like the Pentaquark (ccuud) for example:



And if the two charm quarks are eliminated, it leaves us two Up quarks and one Down quark. Furthermore, if most of the quarks first started by combining in exotic hadrons, there's not much Up and Down quarks that disappeared.

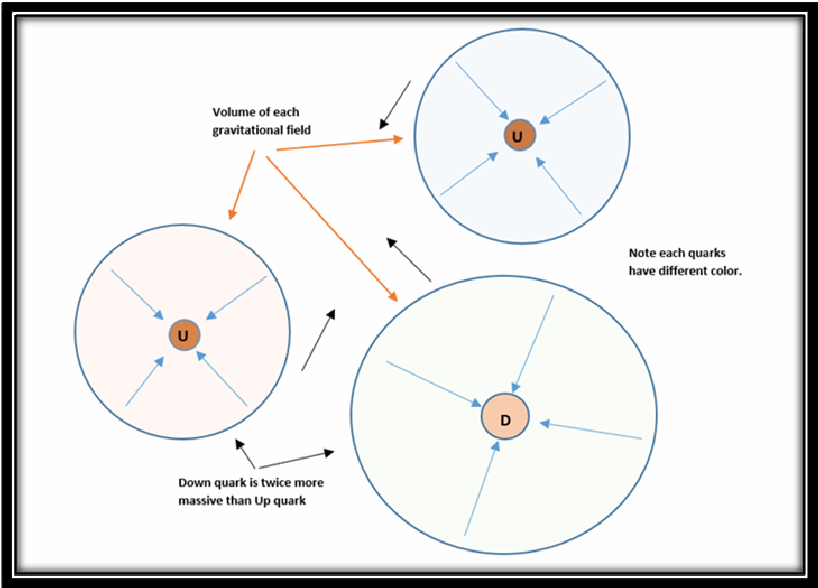
Wow! I think we just found out that there was no asymmetry in the number of particles/antiparticles. Particles were saved from annihilation by forming exotic hadrons before the beginning of the annihilation period. Those exotic hadrons were tried before normal hadrons which were successful at the end; there's no doubt about this. And since they are not stable particles, they reappeared after annihilation was finished by eliminating the last particles anti particles contained in those exotic hadrons; which would explain the absence of too high gamma ray energy.

From this moment on, we will concentrate on quarks and electrons.

After the catastrophe, there was quite a bit of space available to particles; so it took a little while before they brushed closely enough to one another to interact. Around  $10^{-6}$  sec, it started. Quarks regrouped in 3 and produced stabilized hadrons. Since anti-quarks were all gone, the quarks had their "gravitational field" to themselves, and each one had his own.

The regrouping was made in 2 phases:

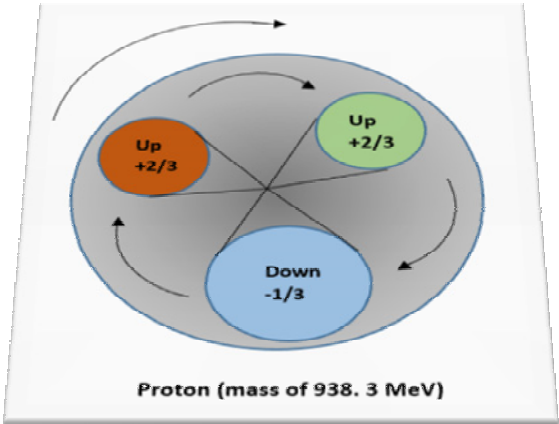
1)



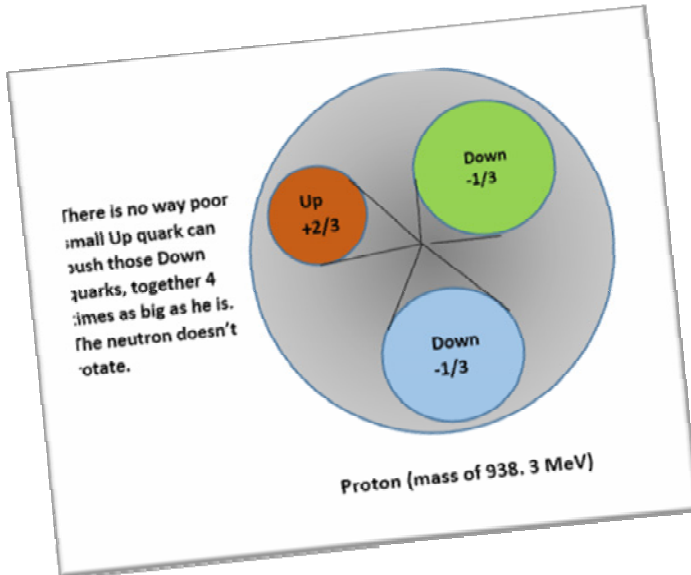
2) All three quarks united their center of gravity resulting in a positive proton:

If you add the charges of the Up quarks to the charge of the Down quark you get:

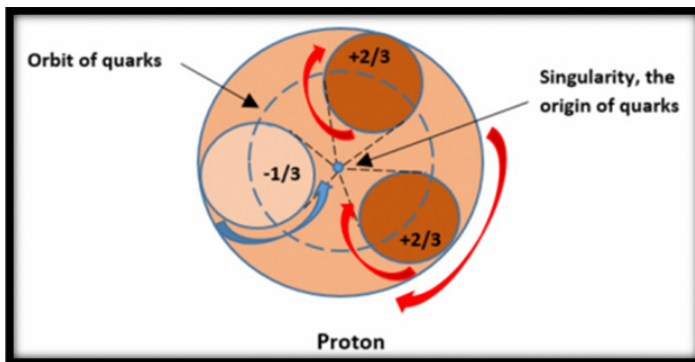
$+2/3 + 2/3 - 1/3 = +1$  which makes a proton positive.



When it was two Down quarks that united with an Up quark, it gave:  $+2/3 - 1/3 - 1/3 = 0$ ; which produced a neutral (0) Neutron.



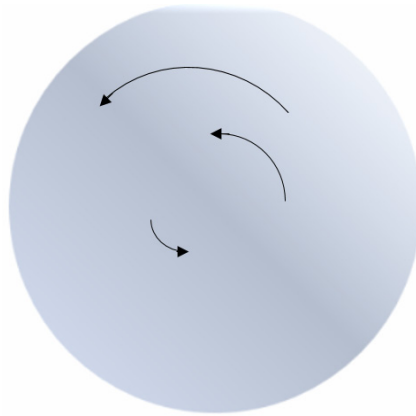
But what goes inside that proton? Those + and – signs must mean something, will you say? Well, here is what I think goes on in there. A picture is worth a thousand words:



As you can see, in my mind there's no doubt that two opposite rotations hold balls to one another and two identical rotations repel them. You can put those up quarks inside the Proton, right against the down quark and they'll all keep on spinning. Furthermore, the Down quark will push itself between the two Up quarks.



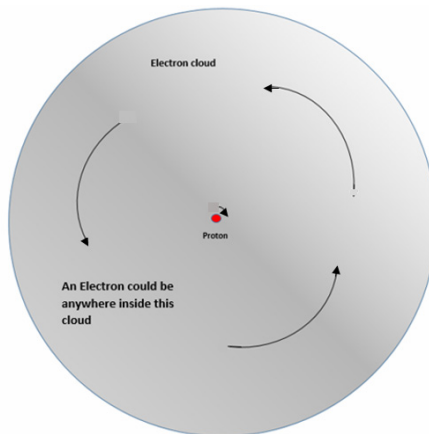
The other most important particle we have at our disposal, in this dark universe, is the electron. If you remember it was a “blurred” cloud of spinning energy with mass (weight) but no center of gravity:



**Electron**

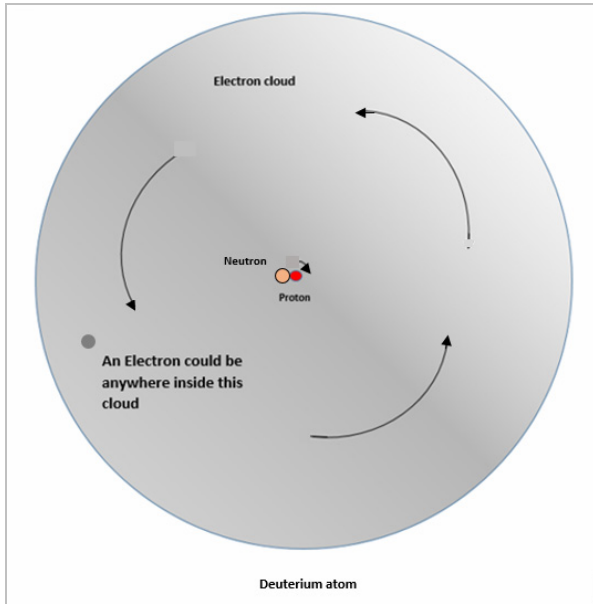
Now we will have to move up our metric to a forward dimension level to see the next fabricated particle called a Hydrogen (H) gas atom, composed of 1 Proton + 1 Electron.

In this next drawing, you will witness the consequence of the fact that an Electron doesn't have a center of gravity. Some will feel that I exaggerated the size relation between a Proton and the Electron cloud; but the reality is that the cloud (the whole atom) is 10, 000 times the size of the nucleus. That tells you how the Electron cloud disperses itself in the gravitational field of a nucleus.



**Hydrogen atom**

This accomplished, the real “construction” of atoms called elementary particles, may start. The second particle that appeared was the first real typically constituted atom: the Deuterium. It was the first to be composed of all three kinds of particles available to make matter.

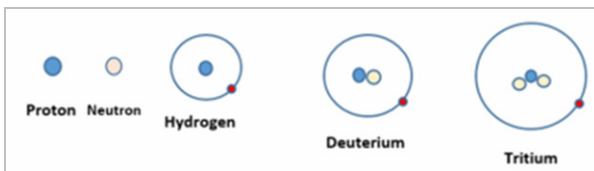


Now, if we add a neutron to this deuterium, we produced an Isotope of Hydrogen called Tritium.

So we have to consider that there's an “intermediate production phase” between the hydrogen atom and the production of helium.

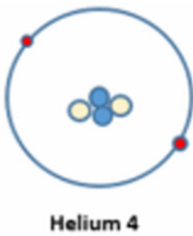
That phase is the capture of one or two neutrons by a hydrogen atom, which transforms it in deuterium or tritium. So the “evolution” of the first atoms was the result of merging of particles available at the time: Protons, neutrons, and electrons.

The following drawing represents this “intermediate production phase” involved:



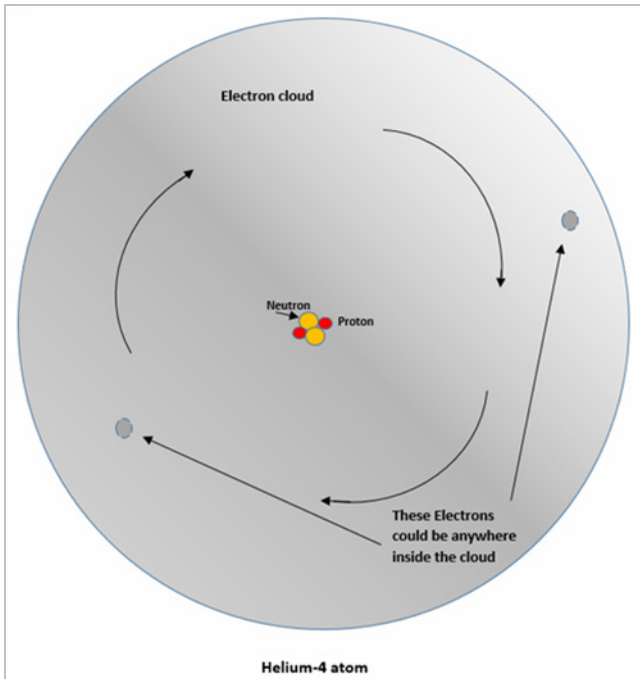
So these were the ingredients available to make the first helium atom. Note that the “real” first atom to exist is the deuterium; because it is the first atom to join all available ingredients in the universe of that time. Hydrogen didn’t integrate a neutron.

As we can see, either the fusion of two deuterium atoms or the fusion of a tritium with hydrogen will produce a helium-4 atom:

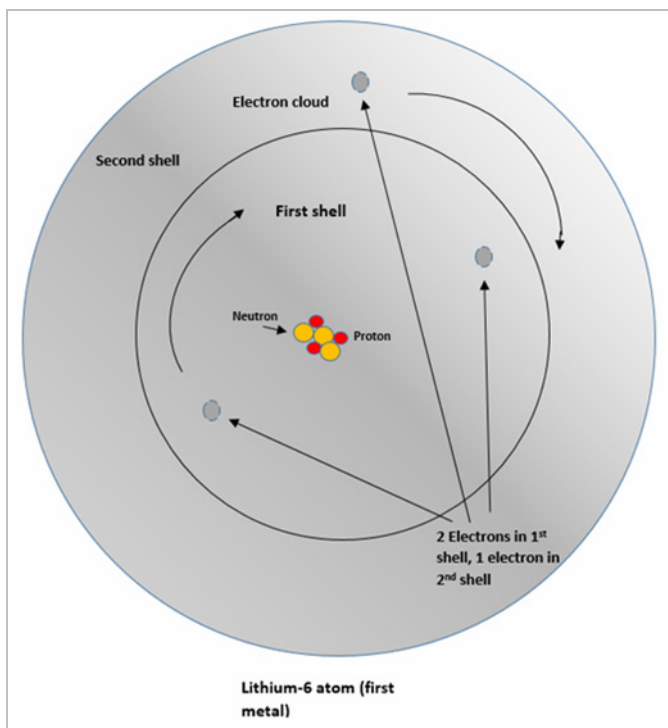


One thing I have to mention: An Atom is an element which has the same number of Protons, Neutrons, and Electrons. When you have a surplus or lacking Neutrons, you get an Isotope. But many scientists consider that an Isotope is the same as an Atom. I couldn’t figure why, yet.

The second element is called Helium-4 ( $\text{He4}$ ). To produce it, all you have to do is add a proton and an electron (but to obtain an atom you have to include another Neutron; otherwise you get an isotope) to the previous Deuterium atom we just saw. And that’s the way it works for the whole periodic table of elements.



The subsequent element is the lithium-6 atom (3P + 3 N + 3 el)



With this information, we can understand the structure of atoms. Every time you add a proton and an electron you get a new element. To get the atom, you have to add a neutron with each Proton and electron. If you add a surplus of Neutron, you get an Isotope of the element which becomes, generally, radioactive. Normally an atom is stable; but not always. One exception comes to my mind which is called The Fluorine atom with 9 Protons + 9 Neutrons + 9 Electrons and is UNSTABLE. This exception might be the first unstable atom that you will meet on the periodic table. This atom, to gain stability, has to add one Neutron. So the Fluorine-18 atom is unstable while the fluorine-19 Isotope is stable. That would be a nice problem to tackle someday. Just to present the “facts” let’s say that:

- 1) There are 253 known stable nuclides.
- 2) For light nuclei, stability demands even numbers of protons and neutrons.

3) Heavier nuclei demand more neutrons than protons to be stable. The proton has 0, 9986 of the mass of a neutron; so why the need of more neutrons to stabilize a nucleus would be an excellent question.

4) 80% of stable nuclei have a pair number of protons and 78% a pair number of neutrons.

5) All elements containing more than 83 protons are radioactive.

6) The most stable and abundant of the natural nucleus is an isotope of iron with 26 protons and 30 neutrons. Other iron stable core is with 28 neutrons, 31 neutrons, and 32 neutrons.

How about having a look at the Nucleus environment?

We now know that each nucleus volume is the consequence of the gluon field effectiveness which extends at  $10^{-15}$  meter. So a hydrogen nucleus has the size of  $10^{-15}$  meter. A nucleus is around 10,000 times smaller than the atom (if an atom is 19 miles in diameter, the nucleus will have a bit less than 10 feet in diameter. Which gives an idea of the volume of "altered space" around a nucleus that is made of Protons and Neutrons, which are not "matter particles" but are "pre-matter" particles. Those "pre-matter" particles are "sphere shaped"; but nothing says that they regroup in a sphere. The fact we know is that they are subjected to the space metric of their environment.

Since a hydrogen nucleus has a size  $10^{-15}$  meter, it is confined inside a gluon metric of  $10^{-15}$  meter; which means that all the future components of elements (growing the size of the nucleus) are also limited to the same metric volume.

Protons are pre-matter particles composed of three quarks particles attached to the center of gravity of the Proton (as we previously saw). The same structure goes for Neutrons.

A nucleus is always incorporated in a gluon field, and we know that a gluon is a "surface" particle (bi-dimensional); but it spins, thus creating a three-dimensional field that extends when added massive particles.

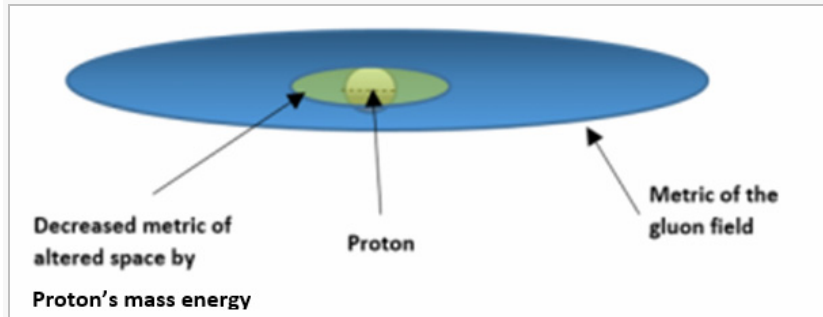
So if we draw a gluon field we get something similar to:

Picture A)



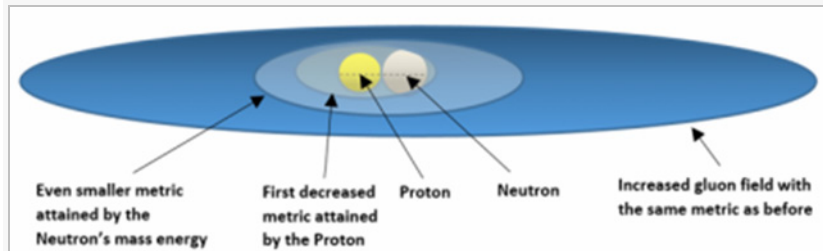
If we had a Proton that has “mass energy,” we get:

Picture B)



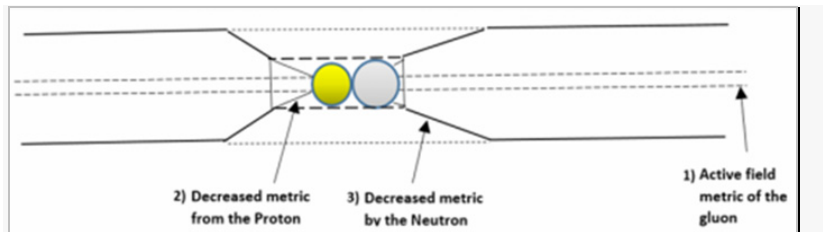
and if we add a Neutron that has more mass energy than a Proton, we get:

Picture C)



So what would be the metric profile of that drawing?

Picture D)



and what does this tell us?

— It tells me that you don't have very much to do during the day.

— Right, Mr. Trump; nevertheless, I do quite a bit; don't I?

First, we have to take the “date” in consideration. It's evident that when Hydrogen appeared in the universe, the metric of “flat” universe had expanded quite a bit. But does it matter since “altered Time” around Protons and Neutrons was not expanding? I doubt that it does; so one thing is settled.

In the previous drawing, we see the gluon active field metric of  $10^{-15}$  meter (no 1).

Then we see (no 2) the result of the pressure of the proton's mass energy, which holds back its center of gravity, decreasing the metric of its surrounding “Time.” The portion of “altered Time” around the Proton is what will “capture” an energetic electron cloud to “create” a Hydrogen atom. This event doesn't mean that this portion of “altered Time” already possesses a dynamic “identity”; it's not energetic; it is only “modified Time metric.” So this portion of “altered Time metric” as to be compatible to the energy density of the incoming electron cloud. This compatibility confirms that Time vs. expansion is involved since energy density decreases over Time by the action of expansion.

So what about that electron cloud that will be “captured?”

The electron is a definite volume of rotating kinetic energy that produces a “mass energy” of 0.511 MeV. It is then, a fixed “density” of kinetic energy. The ratio between the mass energy of a proton and that of an electron is about 1836 to one and has held the same value for at least half the age of the universe. Electrons have a negative electric charge of  $10^{-19}$  coulomb.

An electron is assumed to be a point particle with a point charge and no spatial extent, but the upper limit of the particle's radius would be  $10^{-22}$  meter. Meaning it has a “blurred” energetic volume (otherwise it wouldn't have a radius).

Electrons can jump from one energy level (shell) to another, but they can never have orbits with energies other than the allowed energy levels (shells). And only the Time from the center of gravity can define that density of energy; which means that each orbit has its proper energetic value. But we know that the “altered Time” around

an atom is not dynamic; it is only specific density metrics. So we should rather say that each shell has its proper metric value allowing the presence of a specific density of energy, and we mustn't forget that it is kinetic energy.

We know that an electron behaves as a “wave.” Its “wave” characteristic has to have a wavelength and, never mentioned, but definitely a wave-height. And this definite wave-height has to “fit” inside a specific metric.

Since the height of a wave defines the intensity of energy manifested (frequency), different wave-heights must adapt to different metrics. And we know that each shell, around a nucleus, possesses different metrics; which explains the necessity for electrons to adapt its wave-height (energy) to each shell's metrics until the shell overall metric density is energetically saturated (full). That definition means that only specifics “waveheights” can install themselves into a specific metric and the total energy acceptable is limited.

Furthermore, since the metric increases, while being farther from the center of gravity of the nucleus, it's normal that the energy level of each shells increases, permitting it to contain more and more electron clouds which all have a definite energy.

As you can see, we are approaching a clear vision, or explanation, for different energetical levels (shells) of atoms. We'll see tomorrow if we're getting somewhere.

See you, everybody.





## Chapter 10

# Electronic shells (energy levels)

**A**n atom can have a maximum of 7 energy levels, called electronic shells. Each shell can accept a certain amount of electrons. Each shell has its own level of energy. In my mind, this fact confirms that the energy level of each shell is due to “pressure” from the gravity effect on a Time point, gradually augmenting its density of energy. Shells develop as gradually needed by the nucleus of the atom.

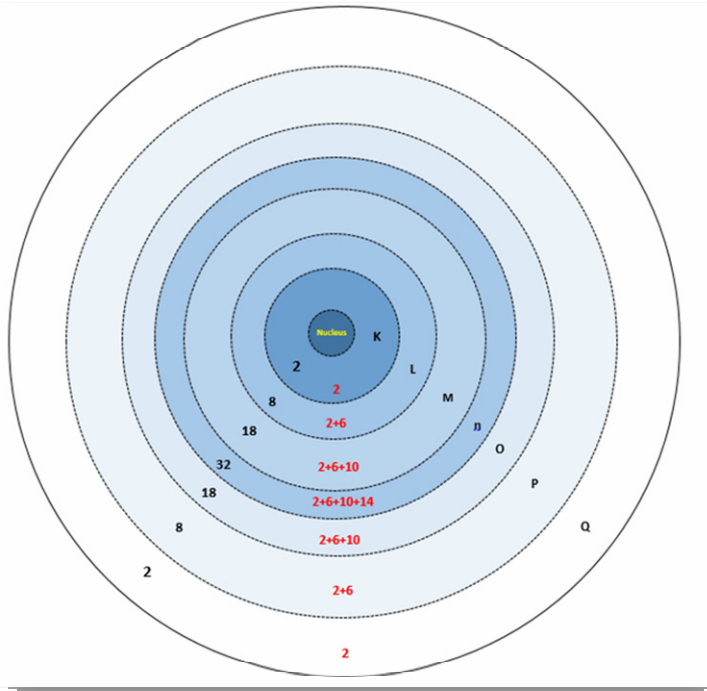
So, I agree; but my question is: “But why?”

— Science doesn’t try to answer questions like “why”; they want to know “how” sir.

— Well then, I guess they won’t mind if I find why won’t they? So let’s keep on.

Here is how the structure looks. I made the shell’s width grossly relative to the number of electrons it has to contain.

Letters are the official “name” of the shells. Red additions are the electrons in subshells; note that they increase from the center, and always “restart” at the beginning



I do believe in the gravitational effect as the basis of all events in altered Time metric. Around a nucleus, as elsewhere, it is the gravitational effect that triggers chemical bonding.

*“Chemical bounding wouldn't come into play unless deuterium "captures" another proton without an electron which would create an element that cannot exist: 3 protons + 1 neutron + 1 electron; just as an element with 2 protons + 1 electron cannot exist. So chemical bounding doesn't start being possible before a second valence orbital is created around a nucleus. Creating a second valence orbital is producing a "stage" between orbitals with a different energy level.”*

It seems obvious then, that:

- 1) Gravitation is responsible of the basis of event since there are 2 orbitals to be created BEFORE chemical bonding effect may start operating.
- 2) At first glance, the proton of a nucleus has a relationship with the energy level of the orbital stages, while the neutron hasn't.

What is underlined means that neutrons do augment the size of “altered space” around a nucleus, but doesn’t produce another “level” of energy; which means that it extends the existing level until a proton is added to the nucleus. In other words, the more “isotopic” status of a nucleus is, the more its last energetic level is extended.

### So how do shells fill?

The first two shells we already saw. Nuclei are accepting in the second shell up to 8 electrons. Then the third shell starts filling until it contains 8 electrons; 10 are still missing; nevertheless, the fourth shell takes over until it has 8 electrons before the third shell can get its 10 missing electrons.

What does all this mean chronologically?

- 1- A proton captures an electron (hydrogen) (1<sup>st</sup> shell).
- 2- A neutron is captured by a hydrogen atom (Deuterium) (1<sup>st</sup> shell).
- 3- Two Deuterium merge and the first shell is filled with two electrons (Helium-4) (1<sup>st</sup> shell).
- 4- Then is added another proton accompanied by an electron and a neutron. A second shell is needed where the electron installs itself (Lithium-6) (2<sup>nd</sup> shell).
- 5- You have to add 7 more triplets (proton-neutron-electron) before you fill that 2<sup>nd</sup> shell. Then a 3<sup>rd</sup> shell “opens.” The opening shell is for Sodium; the previous atom was the Neon.
- 6- This 3<sup>rd</sup> shell accepts 18 electrons, but when it gains 8 electrons with the Argon atom, the 4<sup>th</sup> shell “opens” with the Potassium and appropriates 8 electrons producing Krypton, before letting the 3<sup>rd</sup> shell recuperates its 10 electrons due, making Copper which sends an electron of its 4<sup>th</sup> shell to accompany the new-comer electron.
- 7- The atom with a full 4<sup>th</sup> shell, without a 5<sup>th</sup> shell, is the atom of Palladium. But there are previous elements on the periodic table that don’t have the 4<sup>th</sup> shell full and use the 5<sup>th</sup> shell. The first of those is the Rubidium (following Krypton) that “opens” a 5<sup>th</sup> shell having only 8 electrons on the 4<sup>th</sup>. 8 more atoms are made before getting to the Palladium.

- 8- The rubidium incorporates a deuterium to produce Strontium, but this newly arrived electron installs itself on the 5<sup>th</sup> shell and leaves the 4<sup>th</sup> unfilled.
- 9- The next two atoms add electrons to the 4<sup>th</sup> shell. Then the third one (Niobium) accepts another atom (with is proton) and sends one electron of its fifth shell to the 4<sup>th</sup> shell. The four next atoms finish the filling of the 4<sup>th</sup> shell. The last one to do so performs the task by sending its only electron of the 5<sup>th</sup> shell to the 4<sup>th</sup> accompanied by the incoming electron. Which deprives the before mentioned Palladium from having a 5<sup>th</sup> shell.
- 10- Then atoms start to fill a reopened 5<sup>th</sup> shell which will accept 18 electrons. But as previously, when it attains 8 electrons, the next atom Caesium, opens a 6<sup>th</sup> shell and installs its incoming electron.
- 11- The next atom (Barium) does the same. It now has two electrons in its 6<sup>th</sup> shell. Then the next atom (Lanthanum) starts filling the 5<sup>th</sup> shell. For a while, atoms will have electron either added to the 5<sup>th</sup> shell or jump from one shell to the other.
- 12- Once more, when the 6<sup>th</sup> shell attains 8 electrons (Radon), the next atom (Francium) opens a 7<sup>th</sup> shell. This 7<sup>th</sup> shell is filled (total 2 electrons) before the 6<sup>th</sup> shell receives its next (9<sup>th</sup>) electron.
- 13- When the last “natural” atom (Uranium-92) appears, it has 9 electrons in its 6<sup>th</sup> shell and 2 (full) in its 7<sup>th</sup>.

My question is: what is the reason explaining the fact that when a shell attains 8 electrons, the next atom “opens” another shell without filling the pending shell first? Is it due to protons or to gravitational effect? Or, maybe, we should have another look at the energy flowing through the fundamental “Time clock” we discovered while doubling the space metrics.

Let’s have a look at the energy level of each shell.

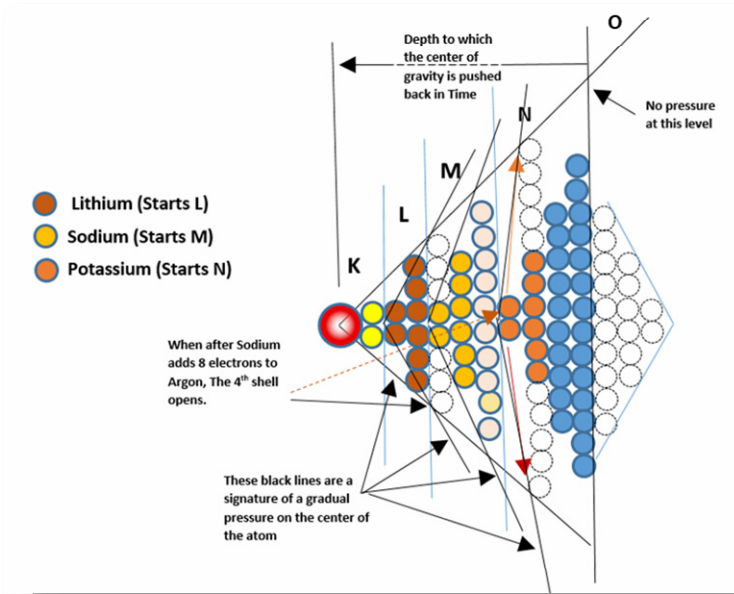
*“Electrons have potential energy (who or what doesn’t), depending on their shell or orbit. Energy levels are assigned to each orbit. There are some situations when an electron will jump from one orbit—or energy level—to another. When that happens, the electron gives off electromagnetic energy of one wavelength or color of light. It releases*

“inner” kinetic energy to fall to a lower shell; similar process as with satellites of which we have to diminish the velocity to bring it to a lower orbit.

But first, let’s have a look at that problem of opening a new shell before the actual one is full. The particularity is that twice in the preceding description, when it has incorporated 8 electrons, a new shell appears. There has to be a reason. Once could be random, but two???

I’ll show the nucleus bigger than the electron because it has a lot more mass-energy. Like usual, I feel there’s a lot simpler explanation than what all maths can supply. By explanation, I mean what it needs to “comprehend” the process; not how many whatever is found in the process. Let’s hope we find something because it’s a hell of a job to do.

I will start by making a drawing that represents the profile of the atom structure evolution. Here’s how it looks:



As you can see I have installed the electrons into their shells, divided in subshells (2+6+10+14) as described by quantum mechanics.

The different colors of electrons indicate when the next shell “opens.” We see that the L shell is full when the M shell “opens” with the Sodium, but the M shell has only 8 electrons when the N shell opens” with the Potassium. That N shell is the one that contains the most electrons (32) the next shell falls back at 18 electrons, and the last shell (not shown) at 2 electrons. The total electrons in a “natural” atom would be 98; in fact, it is 92 with the last natural atom, the Uranium 92.

First remark:

The line between shell O and shell N is “straight”; and we see plainly that line being bent gradually in two, by a pressure directed toward the center of gravity of the original atom (helium). Impossible to keep on saying that gravitation isn’t efficient at the atomic level.

Second remark:

This same line is a “border line” where the atom of helium was first pushed back in Time (and not in space); since the angle of what composes a helium atom is the smallest of all. Nothing has been pushed further back. It means that it’s more bent (here synonym of older) than atoms that were made later.

Once again the **density** of the environment is notable in this fact. It gradually decreases from the epoch of Helium towards later produced atoms.

Third remark:

It’s easy to see that each series of atoms produced successively, underwent gradually decreasing pressure following the gradual expansion of space and dilution of energy density. Which gives “pressure effect” to **density** not to energy.

Fourth:

We can also see that starting from shell O toward “later,” the electrons have passed the point of most pressure and the possibility to “evade” the grip of the gravitational effect was increasing rapidly (Time was catching up). At the end of the next shell, the active field of the nucleus was null. So it was impossible to produce atoms with additional shells. It becomes difficult to prove, with such an observation, that gravity is universal.

Fifth:

Is there a difference between the gravitational effects at this level compared to our actual level? If I made the comparison; I would say: Shell N = Galaxies, shell M = stars, shell L = planets and shell k = Moons. Those are all different orbit levels; just like shells are different orbits of electron clouds. It seems to me as a pretty similar structure.

Sixth:

If we could define the width of each shell, we might be able to set the “width” of Time deformations around galaxies, stars, planets, and moons.

You will certainly notice those white dotted electrons in M and N shells. I was just checking how many electrons were needed to reach the angular line made by the nucleus. The result seems to show that when a quantity of electron is enough to arrive at the angular line made by the precedent first sub-shell, it provokes the opening of a new shell. The proof came out when I took the electrons of the second subshell of each shell and added them to the first subshell of each; the electrons reached that angular line.

What this shows is that, when, in the M shell, the numbers of electrons reached that angular line (placing them in the first subshell), was the exact moment when the succeeding N shell “opened.” As for the N shell, the succeeding shell opened when the second subshell, extended by the number of electrons in the third subshell, reached the same angular line.

So, I found out the “why” to my question, but I’m still trying to figure out the full significance behind it. We’ll see as we go along.





## Chapter 11

# Creating atoms

**T**he universe was ready to produce atoms roughly 3 minutes after the Big bang like affirmed by official science. As for us, we are ready... now. So instead of reading a lot of babble that would sound boring, like someone describing his “around the world tour” while you stayed home, we will all participate in the action, and do the “tour” ourselves.

Furthermore, we will “create” atoms with the “tools” we already discovered and signified since the beginning of my story. Meaning:

- 1) Expansion energy flow
- 2) Gravitational effect from mass energy
- 3) And always keep in mind that when all this happened, the density of the universe was still a lot greater than today.

Climb in; the bus is on its “departure.”

### Periodic elements

There are three categories of elements: Non-metal, metal and metalloids

### Non-metal

They are typically not conductive, not malleable, not shiny, and not magnetic; which doesn't say at all what they... are. Seventeen elements are generally classified as non-metals; most are gases: hydrogen, helium, nitrogen, oxygen, fluorine, neon, chlorine, argon, krypton,

xenon and radon; one is a liquid called bromine, and a few others are solids: carbon, phosphorus, sulfur, selenium, and iodine.

### Metals

They are often conductive to electricity, malleable, shiny, and sometimes magnetic. The metals consist of the alkali metals, alkaline earth, transition metals including lanthanides and actinides.

### Metalloids

They have some characteristics of metals and some features of non-metals. Silicon and arsenic are metalloids. On the periodic table, they separate nonmetals from metals.

The elements commonly classified as metalloids are boron, silicon, germanium, arsenic, antimony, and tellurium. The status of polonium and astatine is not settled.

**Note:** 80 of the 98 naturally-occurring elements are stable; the rest are radioactive, which means they decay into lighter elements over timescales ranging from fractions of a second to billions of years.

We will describe here, the “how’s and why’s” and maybe the “who’s” of the nucleosynthesis process. Something that has never been done before to my knowledge, and isn’t the object of science; so they say. But, I’m sorry to say myself, you may know as much as you want about the universe, but if you don’t possess the “how’s, the why’s and the “who’s,” you can’t uphold that you understand the universe.

To succeed in our quest, we will use all we’ve already gathered up to date, and incorporate it into our description.

a) The energy flow of expansion we found, while decoupling space metrics, will show as a red arrow and the gravitational effect, as a green arrow.

b) The red arrows represents the expansion energy flow topology from the Big bang, that passes easily through neutrons which are, and stay, “neutral” (their “inner” charge is : 0).

c) The green arrows stand for the topology of the gravitational effect produced by protons (charge = +1) which actually “acts” on the center of gravity producing consequences in and around the nucleus.

The electrons, you will recall, are simply quanta of electromagnetic energy particles that adopted a counter clockwise rotation issued from the down flow direction of the up and down vibration of an electromagnetic gamma wave. They have mass energy, but possess no center of gravity to merge with the center of the atom; which makes their kinetic energy sensible to the gravitational effects of neutrons and protons. So, they still maintain an individual independence in the overall arrangement; when needed, they change places. Electrons also have a negative charge (-1) which makes them “committed” to positively charged protons.

These are all, and exclusively the only, available “tools” the universe had when it started what is called: the Nucleosynthesis that describes the creation of elements; which are atoms and isotopes.

Any outside “magical” implication is out of all practical considerations in our demonstration.

As I already mentioned, atoms are particles that have equal numbers of protons, neutrons, and electrons, while isotopes are atoms that have a surplus or a deficiency of neutrons. Ions have a deficiency in the number of electrons.

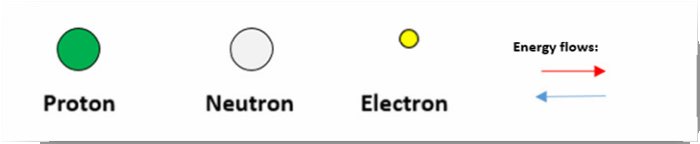
As a consequence of this last definition, we will consider the hydrogen atom, which doesn’t possess a neutron, as an isotope, even though it is the very first stage of a composite particle at the level of atoms. The name of the first “atom” appearing in our universe, should go to Deuterium which, for the first time in history, possesses all 3 of the structural composites of matter.

We will install our electrons in shells of atoms (K-L-M-N-O-P) as they should be, instead of putting them in a definite orbit as is usually done. They will always “orbit” inside their energy shell within the presented “altered Time” grayish volume around the nucleus.

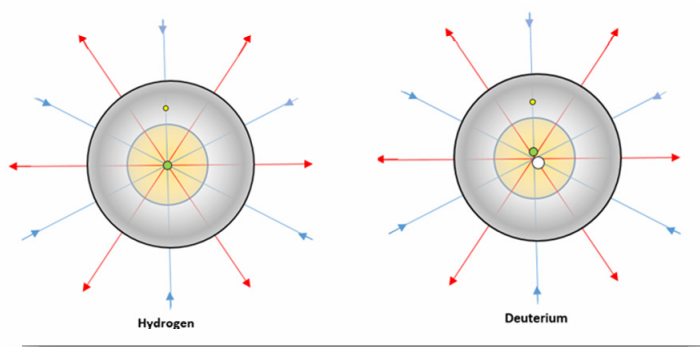
We won’t go through the whole periodic table because that would become mind-numbing, but we will do enough to understand the process which “nature” used to produce matter.

So, the following is the starting foundation of the “tour” to which I convey you. I hope your trip will be as fascinating for you as it was for me.

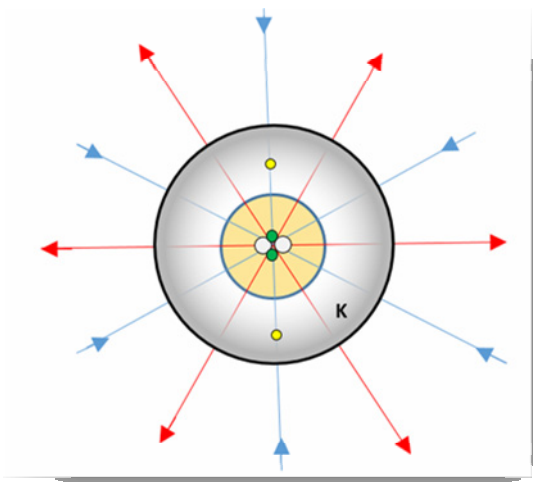
Composites:



Basic composed elements:



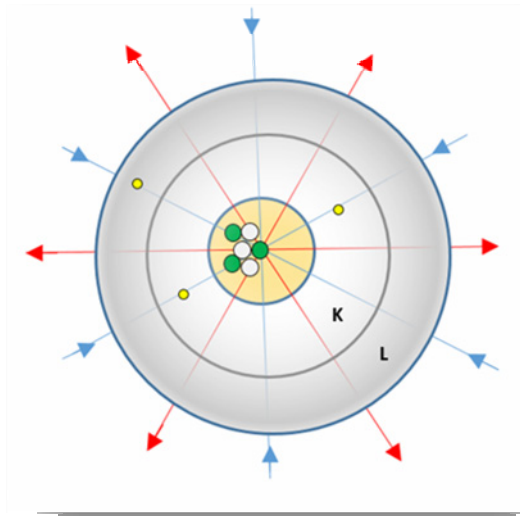
Atoms:



Helium-4 is a **gas**. Note that nothing is still installed at its center of gravity (as for Deuterium) because neutrons have a bit more mass energy than protons which cannot push them aside and prevent them from pressing each other at the center point of gravity.

Observe that particles adopt the position on either their mutual energy “flow” or gravitational “flow.” As you can see, in helium-4 you can take out one neutron without destabilizing the element. Which is exactly the case with helium-3 (2 protons + 1 neutron) that has lost a neutron and still kept stable. But the neutron has to get between protons.

\* \* \*

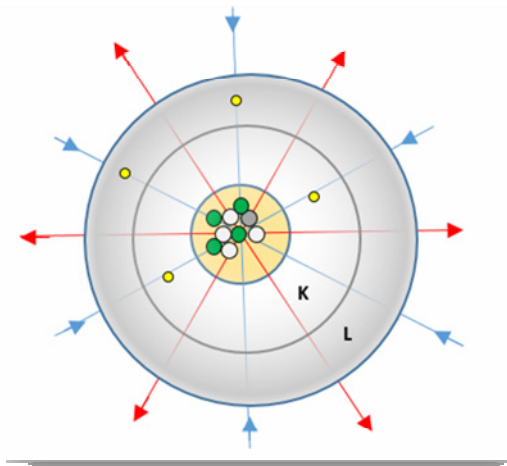


Lithium-6 is the lightest and first solid metal atom. It is made of 3 protons, 3 neutrons, and 3 electrons; which composition means that it was produced by adding a hydrogen atom to helium-4, then capturing a neutron. The adding of hydrogen made the gravitational effect of protons “stronger” than neutrons with the expansion flow topology for a brief instant, and a proton took the center of gravity of the atom. Rapidly two neutrons “jumped in” to stabilize the composite element without being able to dislodge the proton.

The difference between gravitational effect and expansion energy flow is so thin in this case, that lithium, even if it was produced by the primordial nucleosynthesis process, is less numerous in “nature” than some other heavier elements that came later; which is exceptional.

Note that another neutron can install itself on the 9hr line flow of energy (between two protons), without disturbing the stability of the nucleus; which is the reason why lithium-7 is also stable.

\* \* \*



Beryllium-8 is the atom of an alkaline metal. It wasn't produced stable and had to become an isotope to gain stability. Stable Beryllium-9 was created in minimal quantity during primordial nucleosynthesis (which means that my former example of Fluorine could have been Beryllium).

The atom itself has 4 protons, 4 neutrons, and 4 electrons. It needs a 5<sup>th</sup> neutron to be stable; so we added another neutron (darker) on its appropriate line flow that made the particle stable. It's easy to visualize in the drawing that, without this added neutron, one of the protons would destabilize the atom. It also confirms that in Lithium-7, the added neutron installs itself on the horizontal line “flow” as we've just said.

\* \* \*

Here starts the nucleosynthesis made by stars:

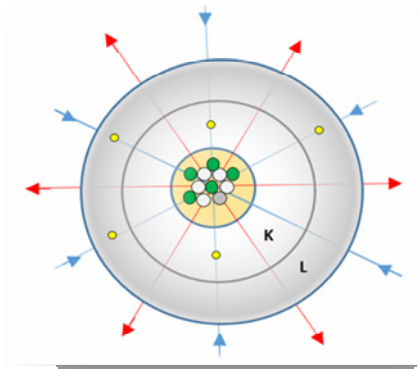
Stellar nucleosynthesis is the process by which the natural abundances of the chemical elements within stars change due to nuclear fusion reactions in the cores and their overlying mantles. It is due to gravitational effect; all other implications are consequences of that initial effect. Naturally, the first fusion made by stars are with hydrogen atoms. There are 3 populations of stars:

The oldest population which should be called “population I” but is called population III, because scientists always go “backward” in time with their discoveries, are stars still hypothetical because they have never been observed. They contain no metals (elements heavier than helium) except possible traces of Lithium (Beryllium had already decayed when stars were born), simply because the early universe contained mostly different isotopes of Hydrogen, Helium, and Lithium.

Population II are old stars with very low metal content. They emerged relatively quickly after the “explosions” of population III stars.

Population I are Metal rich stars, which are comparatively young. Our sun is part of this population. Even though components of stars define the population, it doesn’t define a particular “generation”; because its contents are relative to its environment. So a brand new star can be composed exclusively of hydrogen and helium; which classes it in a population III star.

So our “tour” continues through the center of stars with the next element which is an exception:



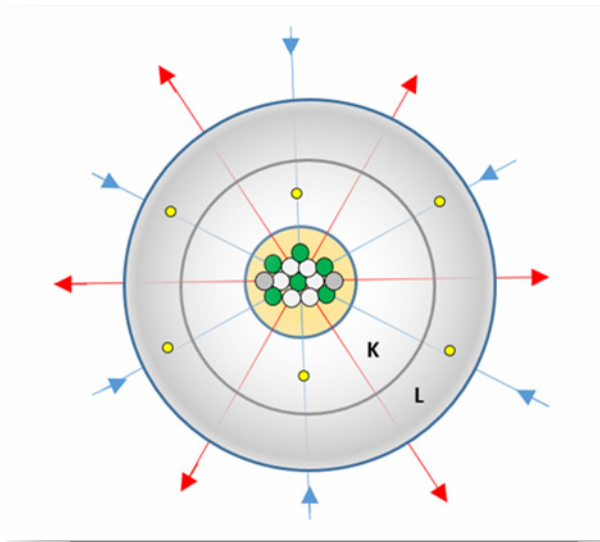


Boron-10 is a metalloid produced entirely by cosmic ray spallation and supernovae; and not by primordial nucleosynthesis or by stellar nucleosynthesis. It is poorly studied because the pure material is extremely difficult to prepare.

As you can see on the drawing, considering electrons attributed to each proton, they have to reorganize themselves by changing shells, consequent to an added proton. This relocation provokes quanta of kinetic energy (neutrinos) exchanges between them, equilibrating their kinetic energy to the shell's kinetic energy they transfer to. But if we consider only clouds of energy, the first shell (K) has attained its maximum, while the second shell (L) gradually gains energy to attain its limit.

Once again, adding a neutron won't destabilize the isotope; so Boron-11 is stable. In fact, this isotope counts for 80% of existing Boron. Isotopes with mass below 10 (less than five neutrons) decay into helium (which means that they get rid of protons and electrons/kinetic energy), while those with mass above 11 mostly become carbon (which means that they capture protons and electrons/kinetic energy).

\* \* \*



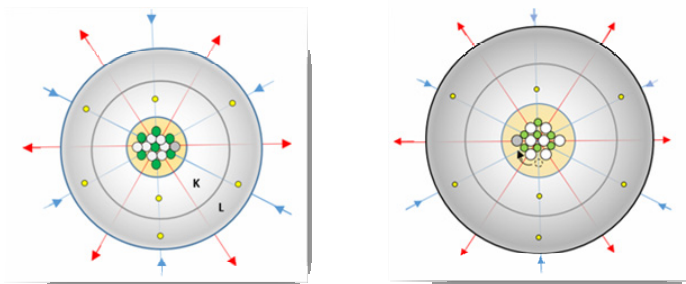
Carbon-12 is a non-metal having 4 electrons in its L shell which can hold eight energical values of an electron. That gives its valence L shell (exterior shell) the possibility of augmenting its kinetic energy by “accepting” the energy of 4 additional electrons; for example 4 hydrogen atoms, or whatever another element that has 1, 2, 3 or 4 atoms in their valence shell (exterior shell). They optimise their valence shell kinetic energy by “merging” them. The process is called a “covalent bond.”

Carbon is known to form almost ten million different compounds, a large majority of all chemical compounds. For this reason, carbon has often been referred to as the "king of the elements." Because of this characteristic, atomic carbon is a very short-lived species; not because it's unstable since it's the 4<sup>th</sup> most abundant element in the universe; but because it associates rapidly to other atoms. This also indicates the path evolution has to follow for stability “effectiveness”.

Isotope carbon 14 (2 dark neutrons added on the drawing, at the “main” horizontal flow line) is also stable. The allotropes of carbon include graphite, one of the softest known substances, and diamond, the hardest naturally occurring substance. It bonds readily with other small atoms including other carbon atoms and is capable of forming multiple stable covalent bonds with suitable, multivalent atoms.

\* \* \*

First try: Correction:



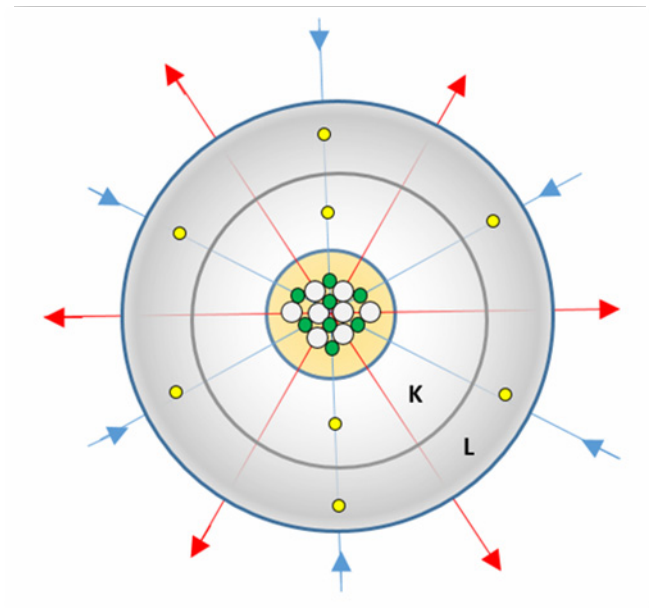
Nitrogen-14 (also called **Azote**) is an asphyxiant gas with 7 protons, 7 neutrons, and 7 electrons. The atom is stable and stays stable even if we add another neutron (dark at 3 o'clock on the left drawing), though a proton changes place like indicated.

I wanted to reach Nitrogen-14 because I wanted to see if it was possible to draw its nucleus while putting a neutron at the center. Even in making protons smaller than neutrons, I couldn't make it.

I could though succeed in putting a proton at the center (left drawing). But then I couldn't produce any more atoms. There was no way I could add a proton after using that disposition.

So I went back to the beginning and saw that the next option the universe adopted was: "nothing" in the middle (Deuterium). So I tried it, and it looked as if it worked (see correction). So gas might be such because they don't have a particle at their center. We should see with the next element, which is also a gas.

\* \* \*



Oxygen-16 is a gas. It has 8 protons, 8 neutrons, and 8 electrons. It stays stable even if we add 1 or 2 neutrons on the horizontal expansion flow. It has 6 electrons in its valence kinetic energy L shell.

It possesses 14 radioactive isotopes (unstable isotopes). As usual, the isotopes having less than the atom's 8 neutrons gets rid of protons and those having more than 10 neutrons captures protons.

It was confirmed. I had to redistribute the protons because there was no way to add a proton to Nitrogen-14 or -15 while leaving protons the way they were first installed (see first try of nitrogen). So instead of using the start position of Hydrogen with a proton at the center, I used the subsequent disposition (Deuterium) with “nothing” at the center of gravity. The change at the center left more space between protons and neutrons; which explains the gas nature of the nucleus. So I went back and corrected my drawing of Helium.



## Chapter 12

# Deeper, we cannot go

So now we've indicated that sometimes atoms have a proton at their center, producing a metal element, while at other times atoms have "nothing" at their center, creating a gas element. Until now, no atom has a neutron at its center (except maybe helium 3).

We will not keep on creating atoms because to go further we need to work with three-dimensional volumes. But we can indicate which atom adds a shell to their previous element. In succession, those atoms are Sodium-22 (3<sup>rd</sup> shells), Potassium-38 (4<sup>th</sup> shells), Rubidium-74 (5<sup>th</sup> shells), Caesium-110 (6<sup>th</sup> shells) and Francium-174 (7<sup>th</sup> shells).

When atoms were done, the universe assembled molecules using improved consequences of the gravitational effect. We are told that a molecule is an electrically neutral group of two or more atoms held together by chemical bonds. Those chemical bonds are based on gravitational tidal effect as we saw and like everything else.

Then, cells are organized. With the advent of cellules, we see life manifest and reproduce itself. Life is another thing we don't know about; where does it come from? It's not by seeing its "actions" that proves when it started. One thing is certain; life is a manifestation of energy. We can't deny that.

Life is definitively a stage toward the perfect viability targeted by the Universe.

We usually compare life to death. In fact, they are not comparable, since they don't have the same essence; which means they don't have the same "nature."

Life is related to the potentiality of the universe; while death is linked to the viability of matter. Life is continuous; it never stops. It is transferred from parents to children continuously. Death is only the fatigue of the material life uses and improves while using it.

Biochemists have made the most advanced researches in science. The ground they covered is astronomical. They have seen the gradual complexity of the path followed by the universe toward its viability. Nothing else in the world equals that complexity.

This part of our story, taken over by life, will end here and we will restrain ourselves to the physics path which we started.

So the universe was full of hydrogen, and, proportionally of a bit of helium.

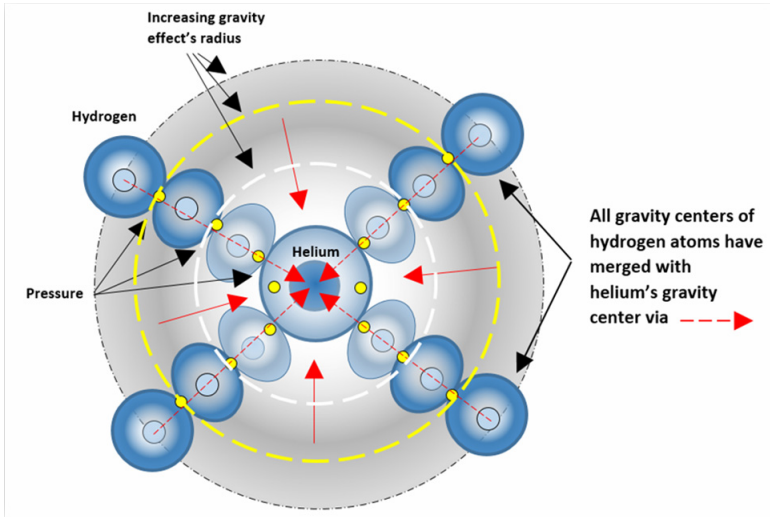
Gravitational effect started "messing up" things once again. In fact, I don't even think that it ever took a break.

We are told that stars were made by accretion of particles, mainly hydrogen. That's nice to say, but how can it be, since a hydrogen nucleus is surrounded by a negative electronic cloud that should repel any approaching hydrogen atom. Two hydrogen atoms can unify by covalent shell since they are both missing one electron per shells, but there cannot be a third hydrogen atom that unites with the same process to those two. So how stars can be accreted hydrogen?

To succeed accretion, you have to augment the gravitational effect; and two unified hydrogen atoms don't increase their gravitational effect; they only "join" themselves at the border of those effects.

There is only one solution, and it resides with the helium atom.

The helium atom is four times more massive than a hydrogen atom. So its gravitational effect is extended four times farther than hydrogen; which means that it can capture four hydrogen atoms in its vicinity. Furthermore, a helium atom has its valence shell "full"; which means that no electron can get into any electronic helium cloud. So it cannot produce a molecule. Let's have a drawing of the case:



The event description is:

- 1) Helium capture 4 hydrogen. Their 4 electrons cannot covalence nor enter the electronic helium cloud.
- 2) The gravitational effect tends the hydrogen to occupy the gravity center of the helium atom. So their proper gravity center merges with Helium's; making it extend its effective radius.
- 3) This greater volume of gravity effect captures more hydrogen atoms; which also join their center of gravity to Helium's and add pressure on the previous hydrogen atoms which start to flatten. Those newly acquainted hydrogen atoms outspread, even more, the gravitational volume from the helium atom's center.
- 4) The captures continue, gravity continues to spread, pressure keeps augmenting and temperature rises at the core of helium.
- 5) The more the volume of gravitational effect grows, the more the numbers of hydrogen atoms increase, filling the whole volume. Each row of hydrogen atoms around the helium atom rises in number, improving the spreading of gravity exponentially.

Once again the Universe found the only possible way to produce stars with what it had at its disposal. Some would ask: "But how can that be? This way of production can't be a hazard? There has to be something guiding evolution."



And effectively, it is not hazard; it's not even the opposite: pre-planned. In reality, what is guiding evolution is the first law of evolution: "survival by stabilizing." The simple fact is that the universe tries every possibility it has within itself at each moment. So it cannot miss any of the right solutions, even if it is hidden in the middle of 10 thousand probabilities that contains thousands of possibilities. The universe tries all of them one by one until the right one reveals itself as the most "viable" solution. Evolution picks this solvable result to go forward. There is no "magic" or no outside directive whatsoever. It's the simple law of evolution. "Try every possibility and carry on with what's effective."

And that's how was born the first "population 3" stars. They had their center compressed until it started fusion, making heavier elements for the periodic table. When the center's pressure became too much, the stars exploded projecting those new formed heavier elements through space.

Meanwhile, there were continuously new stars being born and going through the same process increasing heavier element in space. Those heavier atoms were regrouped in what we call "dust clouds" where new stars were also born. Those new elements where, eventually, going to form planets.

Let's look at a cosmic dust cloud:



Source Wikipedia: part of Orion nebula. Credit of NASA, STScI.

Here we see two stars that are already formed. But they are situated very far in front of the dust cloud; so don't take notice of them. What we are going to study is a formation of a new star and the progressive formation of its planets. Because, we know that most, if not every star we look at, which is close enough, have planets. So planets have to form during the formation of their star.

— But, excuse me sir; a star has to be born to attract planets.

— Attraction doesn't exist; how many times will I have to repeat it. As for planets being born after their star, it's something impossible. The star would accrete all the dust in its gravitational effect volume before any planet could appear. Our Sun, for example, possesses 99% of the mass energy of our whole system; if planets didn't form before it had gained such "power," there wouldn't be any planets orbiting the Sun. Don't you think so?

— Sounds reasonable to me, anyway. That's no Fake deduction.

— I guess you're right sir. But why don't they teach us that?

— They can't teach you what they never bothered to think. They were taught by people who knew, and they learned it without analysing it. Then, they were the ones who "knew"; and they taught it the way they had learned. Knowledge, when admitted as a "fact," is a stop sign to its increase and becomes a "dogma." Always be conscious of this reality.

So when accretion starts to produce a star, it does so with a helium atom as we just saw. But accreting hydrogen atoms leaves heavier elements aside. That is when one of the heavier atoms cruising through the dust cloud starts to capture some heavy atoms lighter than himself and begins to grow in volume. A planet is now being "created" while its star is forming. Both formations use the same process. It's now a race for which one will become a star.

But the race isn't fair at all since there are still a lot more of hydrogen atoms than heavier particles in that cloud. So the future star grows faster than the future planet.

The presence of two massive accretions inside a cosmic dust cloud will have a consequence related to gravitational effect, which will start the production of a second planet very early following the beginning of the first planet's creation. This process, we will see tomorrow. Have a very nice evening everyone. Thank you for being here today.



## Chapter 13

# Gravitational “tidal effect”

**T**oday, to continue my story, we have to talk about the gravitational effect and bring added precisions to it.

Our first subject still relates to an individual gravitational effect inside a single massive particle. Our question will be: What makes a planet rotate? But there also is another gravitational effect that manifests itself when in the presence of two massive particles. This new effect that we will analyze is called the “Tidal effect.” So, what makes a planet rotate?

First, when I think of it, I guess that the rotation of a planet doesn’t start before matter particle accretions start. So let’s consider the very first accretion of two particles.

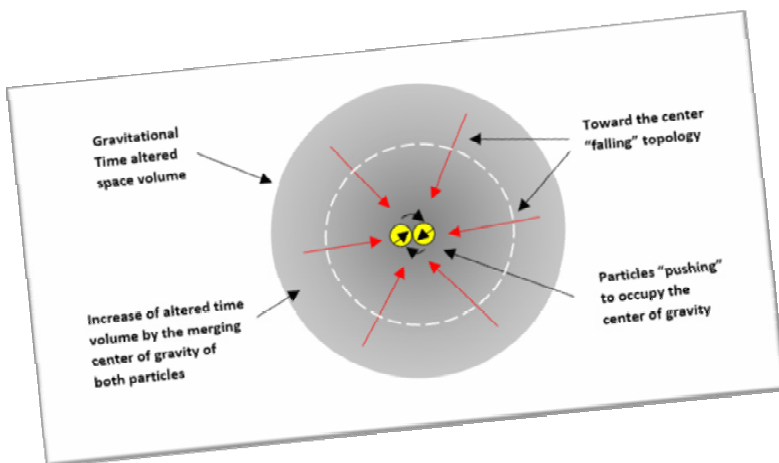
While cruising through space, one massive particle proceeds toward another because each one of them has its proper speed and its straight trajectory; as, for example, our Milky Way galaxy and Andromeda galaxy going toward each other (remember, outside of galaxies, space has a flat topology). Nothing “attracts” our two particles to one another. Each of their trajectory is exclusively responsible for their getting closer to each other; nothing is pulling them.

If you think of it, as the “explosion” of the Big bang created movement going toward, and coming from, all directions (up, down, sideways, etc.), it’s normal that particles following these trajectories, cross each other’s once in a while haphazardly.

Our two particles have “mass,” naturally; which means that both are installed inside an altered Time space volume. In fact, if we think deeper about it, the translatory motion of the particles depends on the movement of the center of gravity of their Time volume deformation. That point of the universe, which suffered a blocking of its expansion in the past, towards where everything is now directed, in each their proper present volume of space. The matter itself of the particles, is “imprisoned” in that time volume deformation; and has no other option but being dragged along with the... “container.”

What happens then, is while brushing by one another too closely, the two centers of gravity get caught in a “tidal effect” that joins both centers into one single center. Thus augmenting the “gravitational power” of that newly formed center of gravity and making the joined deformations of their time volume, quite a bit larger. As for the two particles, as soon as the new center of gravity is defined, both of them start to “fall” toward it, wanting to occupy the position.

When one almost reaches the location, it finds the other particle doing the same thing. What results of all this, is that each particle prevents the other from taking the targeted site. Right at this moment, their proper (personal) speed (“inner” kinetic energy) gets in conflict, and they start to push one another. By doing so, the outcome is that each particle starts making its opponent revolve around the gravity center, instead of occupying it. That’s when the rotation of quantities of matter started.



And that is also when pressure on a center point of gravity, augmenting the gravitational effect, began to accumulate an amount of matter. Other particles, afterward captured by the Time altered volume of space, continued adding pressure on the center of gravity, adding speed to the rotation and increasing its Time deformation dimensions.

This volume of space will never be pushed back in Time farther than where the environment's energy density balances with the augmented mass energy density inside his Time altered volume of space.

This effect, during accretion of particles, made all amounts of matter, planets, stars, etc. rotate; and all of them are still in rotation.

Now, let us address our second subject: What's a gravitational "tidal effect."

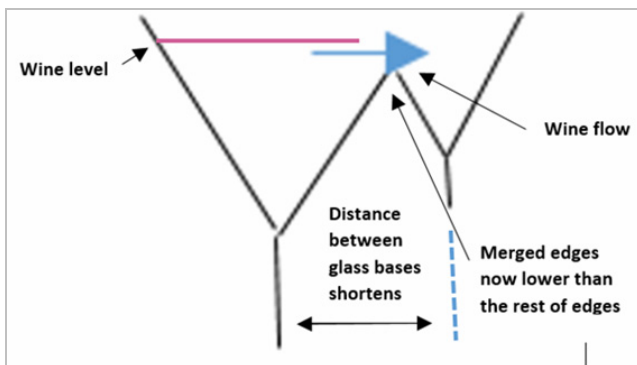
Let me be entirely clear, a "tidal effect" is not a "tidal force"; it is a simple, standard, ordinary, unsurprising "effect", consequent of the gravitational effect. You'll soon be able to evaluate it by yourselves.

Let's try to explain the event with a first drawing.

I will start by giving a V shape to altered Time space volumes. In fact, to demonstrate this situation, I'll propose a toast with two different size wine glasses. The smaller wine glass will represent the lesser altered Time space volume orbiting inside a bigger one.

For the experience, we will say that the small glass is empty and the big one is full. And I will ask you to imagine what would happen if the glasses, when "toasted" to one another, merged their edges to form a corresponding edge.

So here is the drawing of that toast:

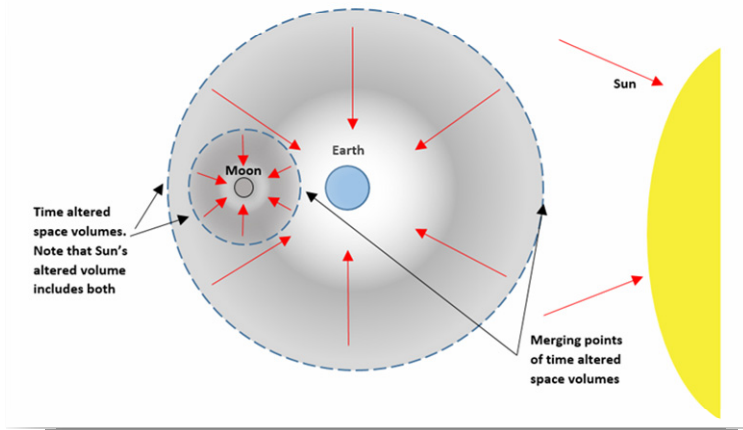


As you can see the merging of both edges results in a lower shared edge; and the wine in the big glass will flow in the small glass.

Furthermore, the fusion of edges also has another important effect: the two bases of the glasses get closer to each other; which means that both centers of gravity are drawn closer together and stop coinciding with the center of each volume of matter contained inside each deformation. That new mutual center of gravity is called a “barycenter.” That’s why Jupiter’s mass energy, for example, displaces toward its specific center of gravity (both ways) the center of gravity of the solar system.

So, a gravitational “tidal effect” occurs when two “independent” center of gravity of altered Time volumes of space touches at each other’s edges. Those altered-Time space volumes don’t have the same energy density; because they are not blocked at the same epoch on the expansion’s Time arrow, or one has accreted more mass-energy than the other (pushing it back in time). Either way, they don’t merge volumes. But they can brush against one another, or one energy volume can be inside of a greater Time altered energy volume; because, even if they are not at the same Time, they are in the same “space.” Both situations produce a “tidal effect.”

Now let’s have a look at a real “tidal effect”; but first let’s have a view of the three objects involved on Earth’s strongest ocean tides:



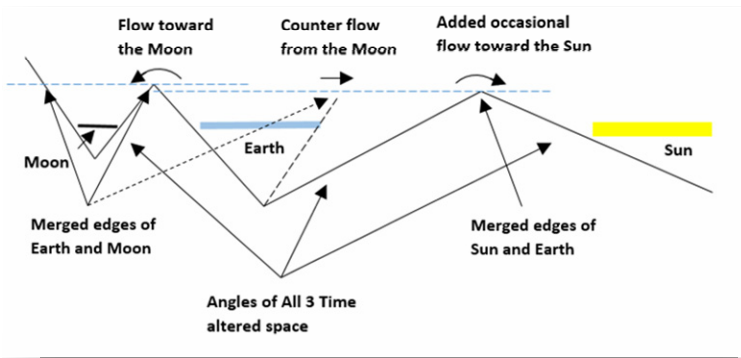
Remarks:

a) Gravitational falling directions are inscribed in red, where the "clock energy flow" showed us when duplicating space metrics.

b) It is the Moon's center of gravity that orbits around Earth's center of gravity. The Moon itself is dragged along with it. The same goes for Earth's gravity center versus the Sun's. Which reminds us that the only "quality" of matter is to add "mass-energy" to an object; which we've regularly observed since the "creation" of atoms. Matter is a client of a time volume "taxi".

c) The merging points of altered time volumes are where the tidal effects take place.

d) The Sun's altered volume effect is negligible except when all three objects are in line. Then the Sun's "altered Time volume effect" adds to the flow when the Sun is on the same side of the new Moon, or counter flow effect when the Sun is on the opposite side of the full Moon. In both occasions, it brings lower the merged edges points of the Earth and Moon Time altered space volumes (see also below).



The counter flow from the Moon is, in reality, caused by the barycentre of both objects, Earth and Moon, which keeps them close to each other. The water liquid involved in this counter tide staying with the center of Earth's gravity doesn't respond to the barycenter while the compacted soil (Earth) does. So it gives the same effect as if the Earth was "pulled" away from that opposite barycenter sided water. As you can understand, the side of the Moon tidal effect on Earth doesn't have the same source as the tidal

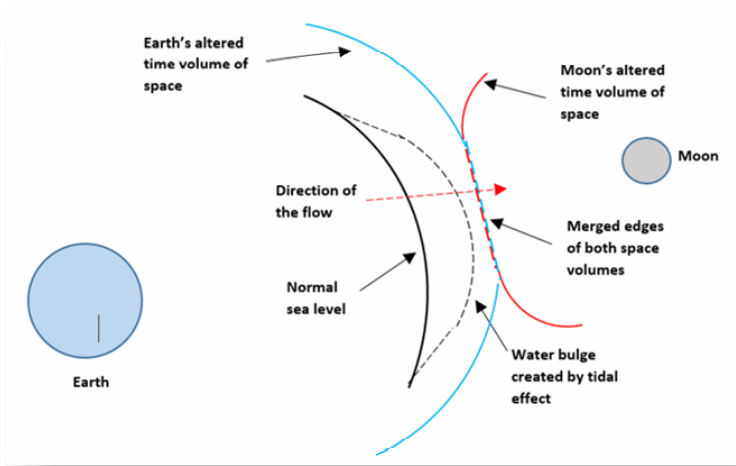


effect on the opposite side of Earth; but they are simultaneous and complementary to each other. But this is a B...S... explanation, and we will see why in the next chapter.

Naturally, the tides don't start and end. That's only an impression of someone standing on the beach. In reality, they are constantly revolving around the planet.

And this is what provokes the rise of ocean levels twice a day, at an approximate interval of  $12 \frac{1}{2}$  hours. When we have a high tide on both opposite sides of the planet, we have a low tide at the  $90^\circ$  perpendicular to the axis joining them. And it's not because of a gravitation effect (or a pulling from the Earth mass), but because, since all oceans communicate, if water rises somewhere, it has to lower elsewhere.

Let's have a last look at the event:

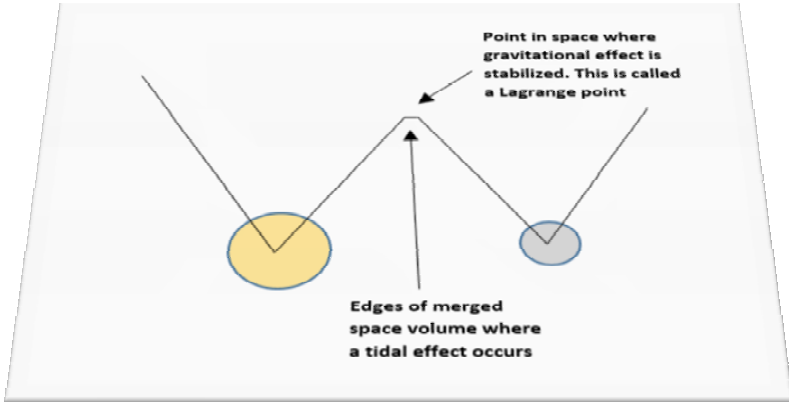


I hope this clarifies the questions.

This information being taken care of, we can now continue our relation of star and planet formation.

We were at the point where there was a race going on between a future star and a forming planet.

When they accreted enough particle so that their Time deformed space volume touched each other, they produced a "tidal effect" where merged the edges of those space volumes. This is a drawing of the event's profile:





## Chapter 14

# Lagrangian points

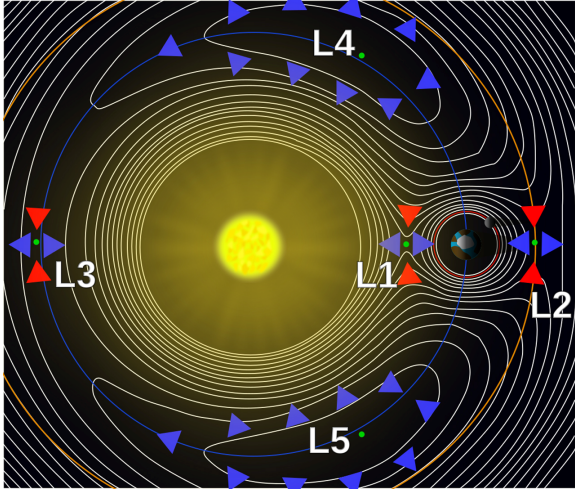
*"In celestial mechanics, the Lagrangian points are positions in an orbital configuration of two large bodies where a small object affected only by gravity can maintain a stable position relative to the two large bodies."*

And such an "orbital configuration," which in fact is a "positions in space," is exactly what we found on our last drawing regarding "Tidal effects." There are five such points in the area of an orbital configuration of two large bodies. They are called:  $L_1$ ,  $L_2$ ,  $L_3$ ,  $L_4$ , and  $L_5$ ; but what about the "secrets functions" of Lagrange points that nobody really wants to know? Like:

- 1) Why are they on the same plane if space is distorted?
- 2) Why are  $L_4$  and  $L_5$  more stable?
- 3) And how come, if it is the geometry of space that is distorted, we get quite a substantial length of space where gravity is "equalized"? We should get only a few "points in space."

We will try to find out.

So here's how the orbital configuration looks from the top:

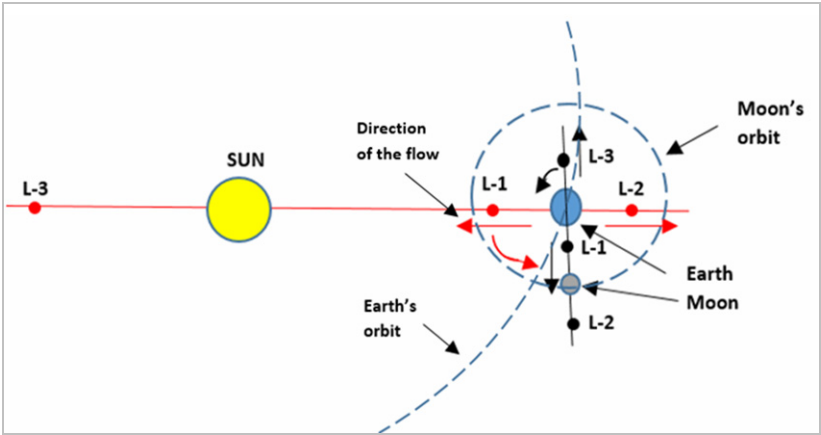


Source: Wikipedia (Lagrangian)

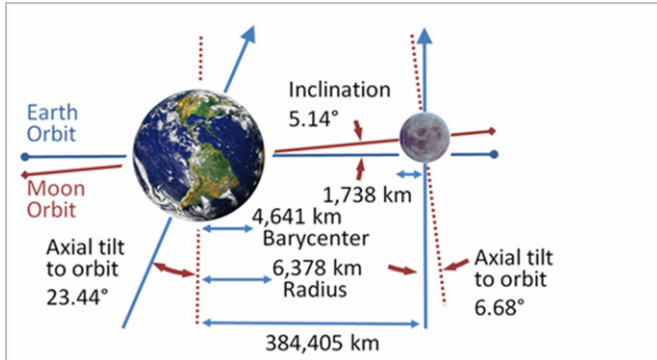
As you can see, the area we found in our last drawing for Tidal effect was the  $L_1$  point of the preceding image. And the official reason why it is stable is that gravitational effect of both large objects balances at that merging point of their edges of mutual Time altered space volumes.

What I see here is the tidal effect  $L_1$  point of the system Sun/Earth. What we found in the precedent chapter, was the  $L_1$  point of the system Earth/Moon that provokes the tide effect towards the Moon.

Now let's compare  $L_1$  and  $L_2$  of both systems merged, one inside the other:



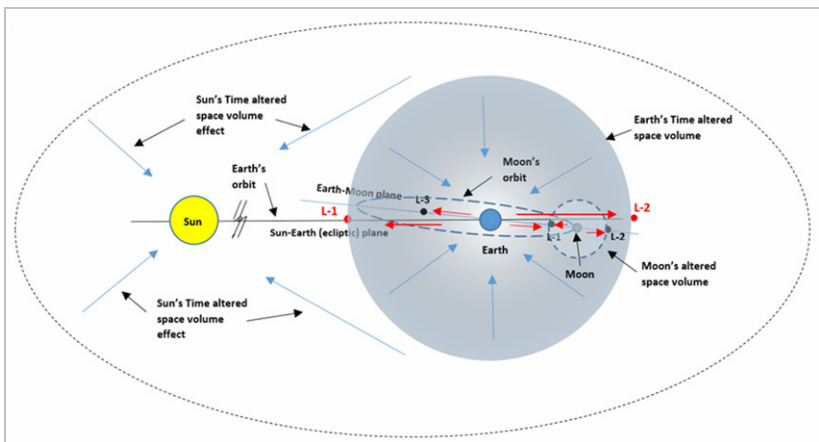
And then, just have a look at the second following sketch. It gets really tricky when you combine everything that's involved in our ocean tides. There are at least 4 Lagrangian points, 3 Time altered space volumes (Sun, Earth and Moon's), Earth's orbit and tilt, plus the Moon's orbit and tilt.



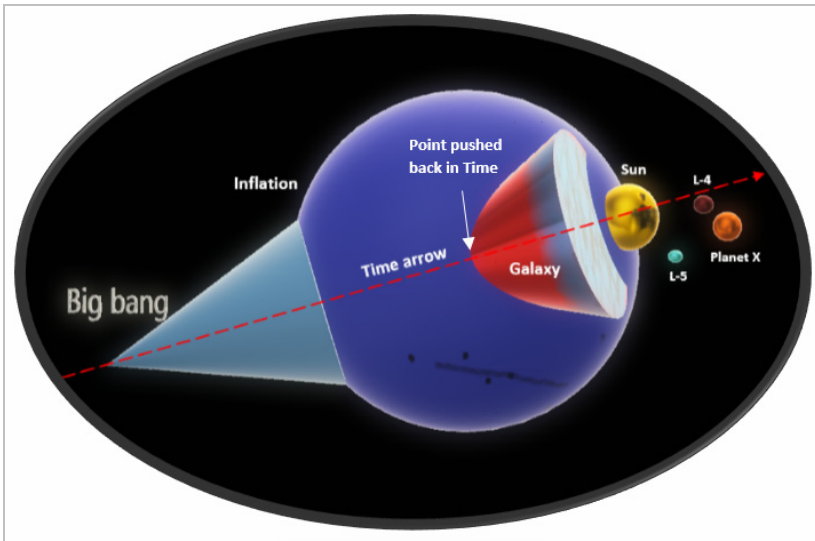
So we can say that being an astronomer is a “profession.” But whatever the shortest way to calculate and find those points, this next drawing is what the reality looks like.

I’ve put in the “gravitational time flow” and dismissed the “expansion time flow”; but, surprisingly (or not), this “expansion time flow” reappears naturally at all 9hr – 3hr axis of each system.

The following would be the “architectural” plan of our Sun – Earth – Moon interrelated systems. How to find each strength involved, I leave it to the “engineering” plan.



And in 3 D:



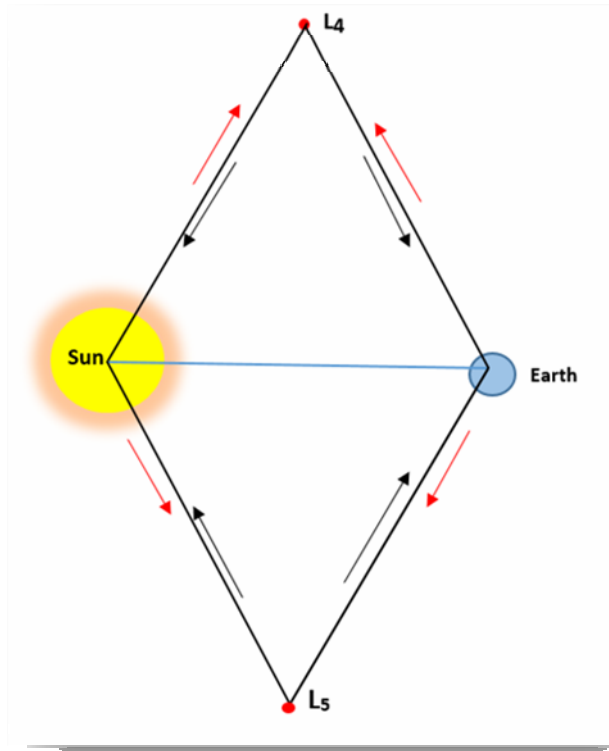
Can you imagine what would look like a plan of all this structure of interrelations for the whole solar system?

I wonder if I could do it using a 52 inches television screen. I'll get the information; you never know, I might be crazy enough to try it. I think it should be fun.

Now, what makes the L4 and L5 Lagrangian more stable than the others? We are told that it is because these points are balanced; at L4 and L5, the distances to the two masses are equal.

*"Accordingly, the gravitational forces from the two massive bodies are in the same ratio as the masses of the two bodies, and so, the resultant force acts through the barycenter of the system. Furthermore, the geometry of the triangle ensures that the resultant acceleration is to the distance from the barycenter in the same ratio as for the two massive bodies. The barycenter being both the center of mass and center of rotation of the three-body system, this resultant force is exactly that required to keep the smaller body at the Lagrange point in orbital equilibrium with the other two larger bodies of system."*

The following is what it means and represents:



Now; I don't want to be a pain in the ...

— But you will be; won't you, sir?

Well, the fact is, that I see a few problems which drive me to investigate a bit more. Remember we are not discussing here the validity of the maths involved; we are debating the reality at stake. As for myself, I don't need to find those points to use them; I don't intend launching satellites. But I certainly need to understand where they came from and what causes them.

Here are my points:

- 1) There is no "attraction" whatsoever involved in these events; the only thing implicated is Time altered volumes of space and tidal wave effect. So forget the d... forces.



- 2) The angles at the base of the triangles for  $L_4$  and  $L_5$  are at  $30^\circ$  from the vertical axis, which is the angle of the “expansion time flow” of energy (red arrows) which we met everywhere; here they are shown as “gravitational flows” (black arrows); so: Why?
- 3) All other Lagrangian points always obey the expansion time flow; why would these two be different?

Let's restart over the whole story. Joseph-Louis Lagrange was born in 1736 and died in 1813. So his work to find these points was based on two pieces of his knowledges, plus one he developed:

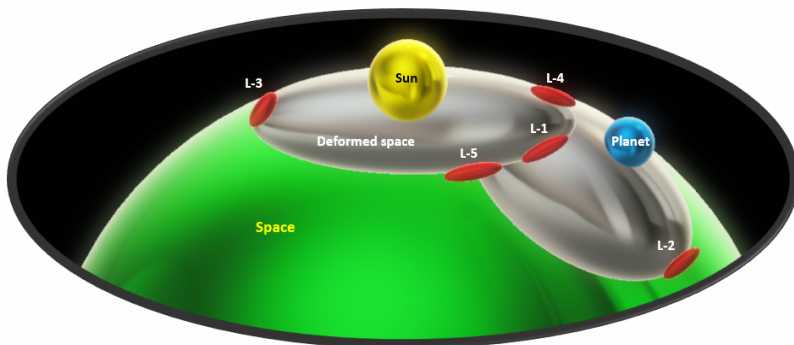
1) Newton's gravitation notion; which he didn't use preferring one branch of “analytic mechanic” called, today, “Lagrangian mechanic” (where Newton's “force” is used anyway).

2) He believed in Ether.

It's then easy to understand that he could imagine, to begin with, that the orbit of each cosmological object could produce a bow wave in Ether, in front of the moving object. And after realizing the implication of the “force” notion, it was normal for him to look if there were no other such stable points around the same object.

But today, we know that ether doesn't exist, and we use Newton's “force” formula to locate those points; and it works. But the question stays: What provokes this since Ether doesn't exist and there are no such things as “forces”?

If we use Einstein concept of space deformation here is what we get:



Which is not satisfying either, because we know that those points, belonging to each system, stand on “the same plane” as the objects; which is not what is shown here.

The only solution to use Einstein's notion and have those points on the same plane is, once again, to attribute the alterations, made by mass-energy, to the Time factor instead of the space factor. This way space isn't geometrically "deformed," and points stay on the same "plane," but has a specific volume "blocked in Time," somewhere on the Time arrow of expansion.

— Which, I must say, sir, isn't such a pain in the "a..." after all.

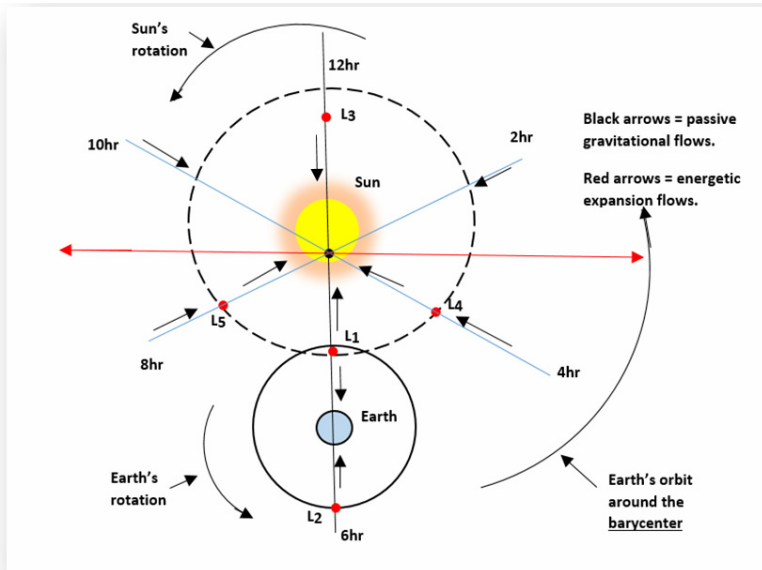
— Thank you. But that still doesn't tell us what produces them, or the differences they show.

— Then, I guess I'll have to postpone what I just said, sir.

— Don't you want to know, my young friend?

— Yes, I do, sir.

— Well, let's get to it then. Here's another drawing:



1-All L-points (in red) follows Earth's orbit, but we mustn't forget the L points of the Earth-Moon systems that follow Earth's rotation (or Moon's orbit). Those are all, successively, subjected to the passive gravitational flow towards the Sun, which we see here on L1. And L1, 2, 4, and 5, should give different levels of ocean tides.

2-The orbit of the Earth is not an effect from the Sun; it's the result of the planet's velocity in the Time altered volume of space imprisoning the Sun.

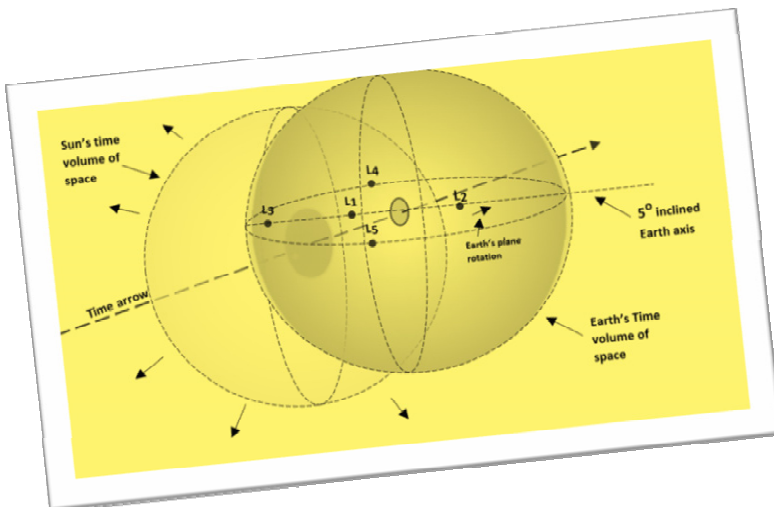
3-We know that L4 and L5 are subjected to the barycenter of the system, but so are the others since the Earth orbits that barycenter. On the other hand, L4 and L5 orbit around the Sun standing on an equalized effects portion of Earth's plane, always situated outside the Sun-Earth axis; which provides them less perturbation, thus making them more stable.

So we found one answer here.

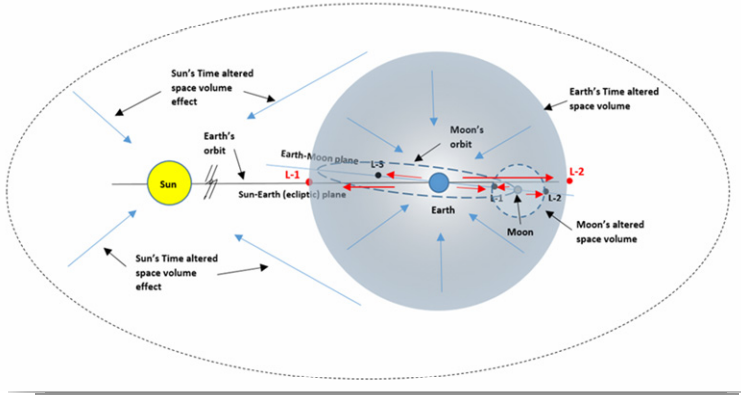
4-Those five red L-points are situated where gravitational flows of each object are supposed to equalize themselves.

5-The question is: What can hold those 5 points to the Earth when one of them (L-3) is on the other side of the Sun and still adopts Earth's orbit?

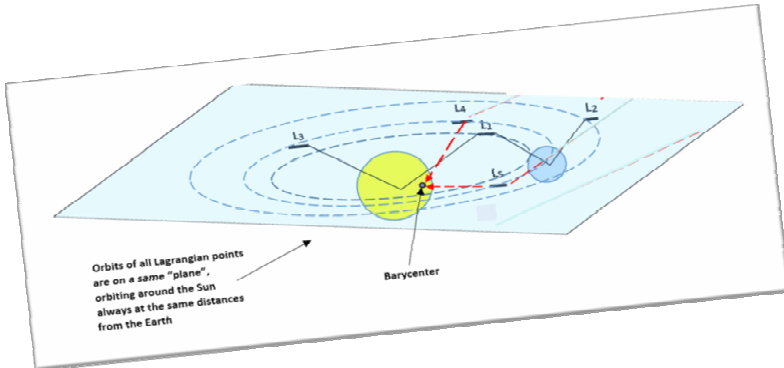
That answer becomes obvious: The reason is that all those points are part of an altered Time volume of space of which the Sun is not. The sun has greater mass energy; so its volume of space stands farther back on the Time arrow than Earth's volume of space, but it includes it. Let's see:



This last sketch holds the unseen added information we have to keep in mind, when we look at our previous drawing on L point reproduced here:

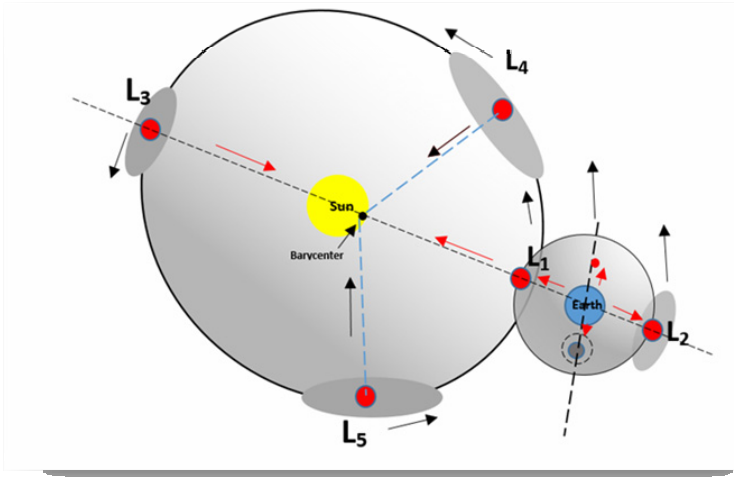


And this is the plane:



So finally, all those L points are places where the decreasing metric of Earth's Time is equalized with the decreased time metric of the Sun.

The following is a drawing of the actual Time altered space volumes when considering that masses of matter deforms space around itself, which is... more than "disputable"; nevertheless, it can illustrate the 5 "positions" where gravitational effects are balanced.



You may note that L4 and L5 are exclusively and continuously in a “passive gravitational time flow” of the Sun; which gives them more stability than the other 3 L points always disturbed by the Earth’s “energetical expansion flow.”

So we got a few answers to our questions, but the main object was to show you that there were “special” places in space where no “falling effect” takes place.

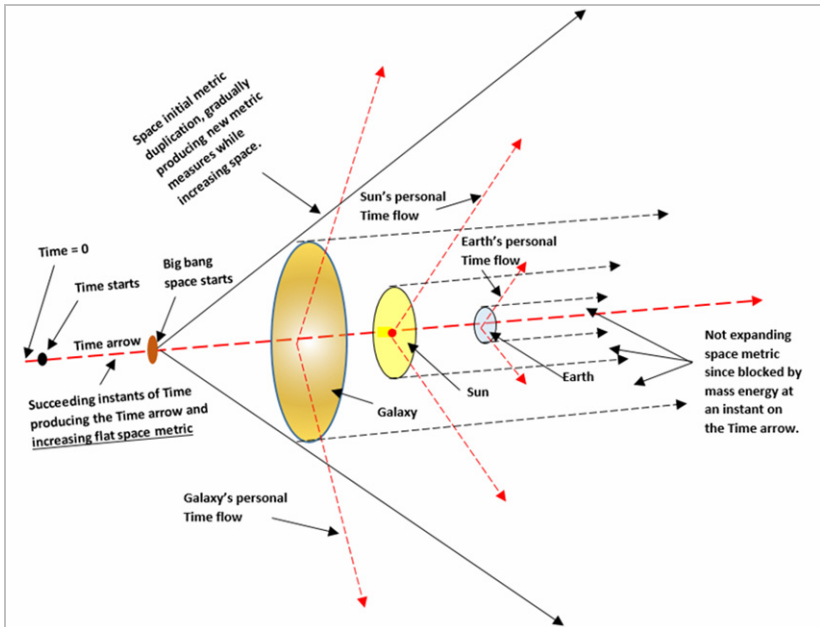
## Chapter 15

# Small revision

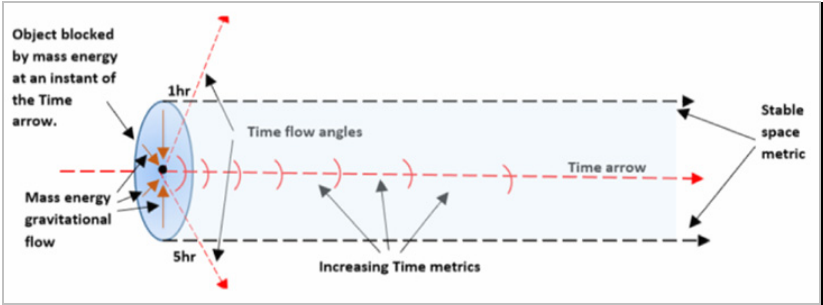
Let's, briefly, have a look at what we've seen and found until now.

### Time versus space

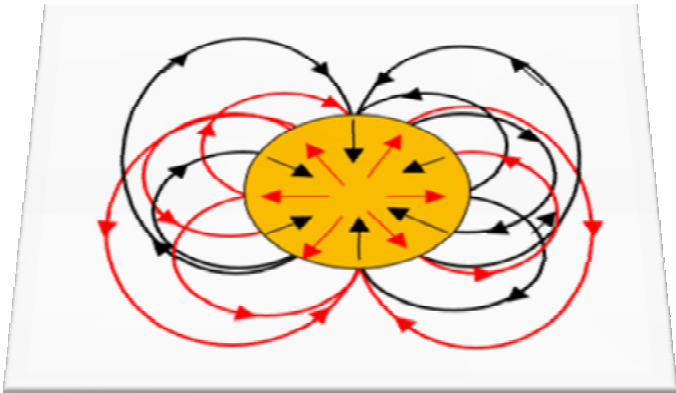
1) The next drawing is the “architectural plan” of the universe since the beginning of Time that we've seen already; it's worth studying it:



2) And this is the structure inside each volume of not expanding space where Time’s metric between flows continues to increase:



3) As for the energetic and gravitational flows, I decided to use after finding them while fabricating particles, what happens when we define them in an object:



I don’t know about you, but to me, it looks like the magnetic field of a magnet or a planet.

So I was right not to be embarrassed by using this “flow notion.”

Now, these pictures talk by themselves and explain whatever we saw of the universe until now. But there’s still a fundamental question that has to be answered yet:

“How can a Time metric increase in length?”

There’s only one explanation possible, and it’s: “By increasing speed.”

But then, if Time, whatever it be cause or effect, follows expansion that goes to light-speed, it means that it cannot increase its speed.

— Didn't science find that expansion was accelerating, sir?

— It did, and it means, either that expansion doesn't go at light speed or, doesn't accelerate. That is if we want to keep the law of invariance of light speed. It is also said that: *"The physical explanation for the observed accelerated expansion of the Universe is currently not known."*

But then we have the other "law" that explains the Higgs field effect giving mass because its energy **density** is slowing particles; which means that the denser a field is, the less rapid is the motion. If you consider the whole universe as an "expansion field," and since its density is constantly diluting, its expansion should increase and there's no need for dark energy.

— But what about light speed's invariance?

— Hasn't it been understood that Special relativity addresses only "locally," young man?

— Yes.

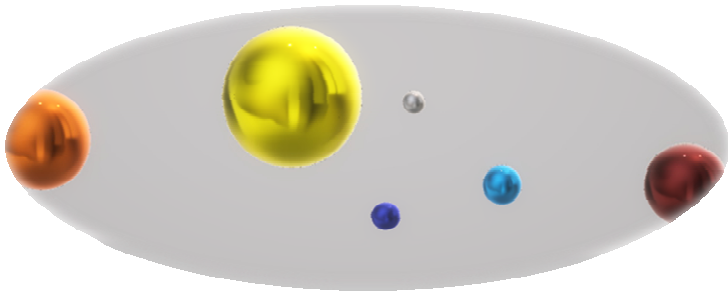
— Then light speed could be invariant only inside a blocked Time flow volume of space. In "flat" space, light speed could increase. And this will have to be experimented somehow, someday. I must admit, there's no other way to explain this whole "set-up" of mine; it needs help from the Higgs field notion that, in my mind, doesn't have to exist; but I'll take all the help I can get. But maybe finding another fact would change my opinion; we will see.





## Chapter 16

# Making of planets

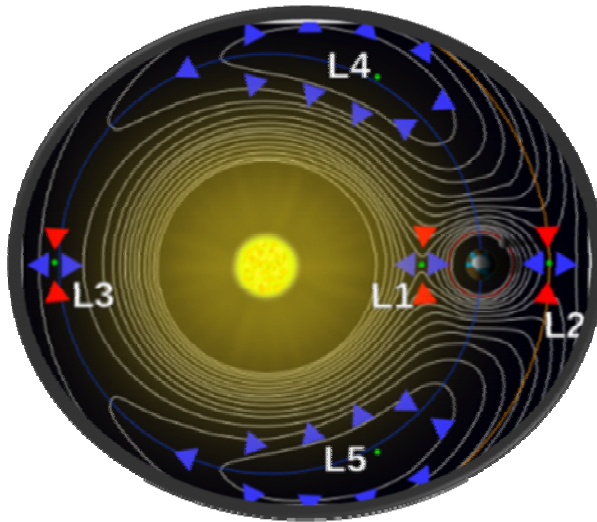


The question is: How could planets be produced?

We all know that accretion of particles creates planets; but no one has explained yet, what permitted and which exact process caused those accretions (at least I have never heard of it). Gravity, by itself, should have accreted everything to the Sun; so what prevented this from happening?

Let's look at a simple fact that we know regarding orbits of planets around the sun. I'm talking about Lagrangian points that we just saw.

As an example, this is the "picture" of those points created by the sun versus the Earth. Note that we can also interpret the lines around objects as "space-time deformations" or "decreasing metric of space-time" which should help us.



Source Wikipedia (Lagrangian)

Now; if we remind ourselves of my explanation on the “tidal wave effect” at the “merge junction of two glass wines,” we can imagine that we could stand on that single point without falling on either side of the deformation (in either glass wine). Which means that, on those points, gravity is “equalized.”

Point L1, on the picture above, is one of those “equalized” locations. At the L1 point, Earth's gravity becomes exactly equal to the Sun's “pull.” So that “spot” is a perfect place where “independent floating particles” can “accrete” or, in other words, where a planet can grow by accretion without “falling” anywhere.

Point L2 is another such place where a “tidal effect” applies, and where gravity is “equalized.”

But, as we saw earlier three other points are also produced as shown in the picture. To make it short, let's confirm that in contrast to L4 and L5, where stable equilibrium exists, the points L1, L2, and L3 are positions of partially unstable equilibrium. Any object orbiting at L1, L2, or L3 will tend to fall out of orbit eventually (because they are situated on “active” time flows, as we saw).

We are now ready to “go.” So let's consider those different points and try to “recreate” the planets around our sun the way it might have happened.

We, then, begin with a molecular cloud held together by gravitational effect.

The center of gravity of the cloud gradually accretes molecule particles and forms a “cosmic body” that will, eventually, start nuclear fusion at his center. As it becomes a big enough “body,” it creates an L1 Lagrangian point between itself and the center of the galaxy, where particles start to accrete and produce a second “object.” This second place should be quite a long way from the first accreted body (future Sun).

Even though it will fall out of orbit eventually, this second “ball of matter” should revolve, for quite a long time, around the centered body that first accreted (Sun), just as all molecule particles (dust cloud) keep on orbiting around it. Furthermore, this new “cosmic object” could even adopt an elliptical orbit passing nearer the first bigger object.

But we must keep in mind that the first body (Sun) started gaining size a long time before the second one since it had to get big enough before “interacting” with the center of the galaxy.

We now have two “cosmic objects” very far and very near, alternately, from each other, with one orbiting in an ellipse around the other. And both continue to gain size by adding particles regarding to their gravitational volume.

These two objects create another L1 point between them which is a lot closer to the biggest cosmic object (future Sun). The next “planet” gets then formed very near to the first big object with a less elliptical orbit.

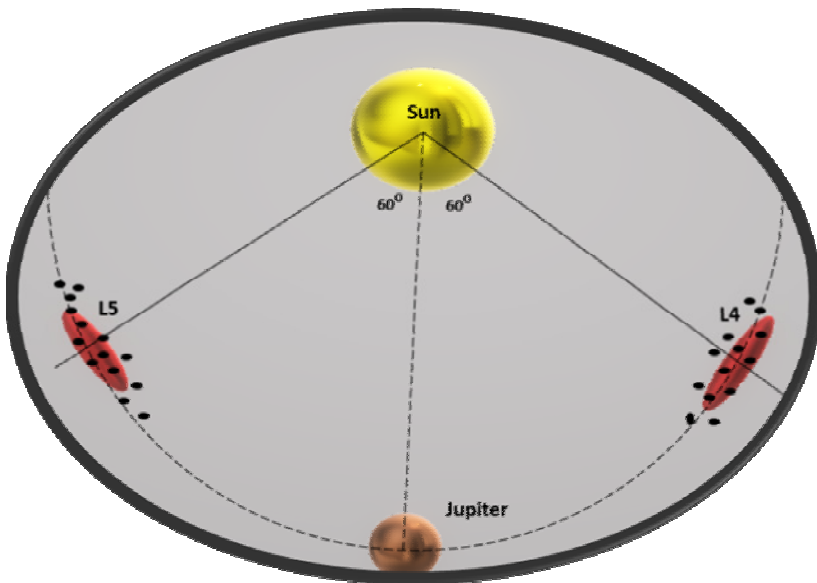
Incidentally, astrologists observe quite a big number of such events: One sun with a big planet orbiting close to it. But let’s continue “creating” planets.

We now have a “planet system” composed of one Sun and two planets. One of those, having a great orbit, cruising first close to the Sun to very far from it (in fact, at the end of the Sun’s Time volume space deformation, where a “tidal wave effect” occurred with the Time deformation of the center of the galaxy). We will forget this last planet for the time being and concentrate on what happens between the sun and its closer orbiting planet.

Those two cosmic objects produce two Lagrangian points (L4 and L5), where two other planets can form. There can also be accretions on L1, L2, and L3 but these objects will fall out of orbit and merge with, probably, the Sun, gaining then a big amount of matter or, as we've already seen in previous posts, "mass-energy." This suddenly added mass-energy might have been what provoke the "ignition" of the Sun (the start of fusion at its center).

So what we observe now is that planets are formed, two at a time, in a solar system; and they form where L4 and L5 Lagrangian points occur between the two biggest objects of the system. Note that L4 and L5 Lagrangian points of smaller planets can produce moons for those planets which will be looped on a stable orbit. It seem that the moons of planets too close to the sun have been captured by it and were annihilated (or never formed).

For example, Jupiter's L4 and L5 Lagrangian points:



As you can see, Lagrangian points seem able to explain the formations of planets around a star inside a molecular galaxy cloud. Presently, at the L4 and L5 points of Jupiter, we find much-accumulated dust that is stabilized in those areas.

Things to note:

a) There is (or was) a first planet formed, far in space, on an initial L1 Lagrangian point of the forming Sun.

b) A very closer one was established on a second L1 (or the first L3) Lagrangian point, and

c) The other planets of the system are "created" on the new L4 and L5 Lagrangian points, which are the really stable orbits in a planet system.

d) Consequently, it's not that crazy to think that there's a planet X somewhere far from the Sun and part of its system. At the condition that this planet situated on an L1 point is still stable; which we can doubt. But even if it fell out of stability, it didn't make it disappear. So it's probably somewhere in space today. But there should be great planets or stars situated on the first L4 and L5 Lagrangian points made by the Sun and the center of the galaxy. This would be another "prediction" scientists are so fond about.

I guess that the moving Lagrangian points are responsible for the orbiting of planets since they were "accreted" on actual orbits. But then, our solar system's story includes at least one "erratic" planet passing through it and reorganizing all planets orbits. No need to say that this erratic planet could well be the one which was formed situated at the first L1 point of the system.

Furthermore, "accretion" is primarily a consequence of "gravity" and not of random "path crossing," since every particle matter is inside a "Time altered space deformation" (particles have mass). In a Time deformed space volume, every particle tends to "fall" back in Time, at the center of gravity; so if you don't have a first Lagrangian point to keep some particles from "falling" (to the Sun) and accrete, you will never get a planet formed.

As for:

"Why are all the major planets on the same plane of the Solar Ecliptic?"

The plane you talk about always stands between, 30 degrees each side of the "whatever" ecliptic you find. Remember that to my point of view, what is important is the geometric deformation of Time (collapsing of its metric) which is gravity. This deformed Time geometric is a "ball (volume) of Time," and its metric gained the possibility to diminish (collapse) when the gluon appeared in the universe. So maybe this limited part of a volume (each side of its "equator") is related to the fact that the gluon, into which quarks appeared, was a "surface" and not a "volume." But I prefer to think that it is related to the 30° each side of the main horizontal time flow of the universal clock.

From the top of my head, I remember that scientists, while studying the spin of a photon, considered its spin as simply the rotation of a photon. So if the rotation (spin) of a gluon (which is a boson just like the photon) and the gluon is a "surface" instead of a "volume," the rotation of the gluon has something to do with the flatness we're talking about; because that rotation will permit to see the spinning gluon's surface only during a limited Time of "space volume" (30° on one side and 30° on the other side).

By the way; it's impossible that a "Sun" starts ignition (fusion) before some other planets start to "accrete" in a molecular cloud. Fusion needs so much particles to start that; other particles have time enough to start accreting before the fusion of the center of the cloud (star) can begin.

As for the explanation of "Conservation of angular momentum" to explain the disk shape of systems, it doesn't apply because, as we have already seen previously, each particle, dust or "body" is orbiting individually around the center of gravity. For example, the "Time volume of space" of a galaxy doesn't rotate; each star of that galaxy simply follow its own "path" (orbit) related to its proper velocity. To have "Conservation of angular momentum" you need the rotation of a "compact" object where all particles "touch" each other's; like Earth, basketball, etc.

More info:

*"The latest analysis of data from the Kepler planet-hunting spacecraft reveals that almost all stars have planets."*

*The researchers also asked whether certain sizes of planets are more or less common around certain types of stars. They found that for every planet size except gas giants, the type of star doesn't matter. Neptune's kind of planets are found just as frequently around red dwarfs as they are around sun-like stars. The same is true for smaller worlds. This contradicts previous findings."*

Sources: Harvard Smithsonian CfA, AAS Press Conference

Again more info:

*"The widely accepted modern variant of the nebular hypothesis is the solar nebular disk model (SNDM) or simply solar nebular model.*

*According to the nebular hypothesis, stars form in massive and dense clouds of molecular hydrogen—giant molecular clouds (GMC).*

*Star formation is a complex process, which always produces a gaseous protoplanetary disk around the young star. This may give birth to planets in certain circumstances, which are not well known. Thus the formation of planetary systems is thought to be a natural result of star formation (We can't say anything against that; can't we? I wonder if anyone could say anything against what I proposed. Wouldn't this be another "prediction"?)*

*A Sun-like star usually takes approximately 1 million years to form, with the protoplanetary disk evolving into a planetary system over the next 10–100 million years."*

But this is where the explanation doesn't fit:

*"Every nebula begins with a certain amount of angular momentum."*  
And we've explained why it's wrong, previously.

Surprisingly, this whole "process" of planet "creation" was elaborated by Emmanuel Kant in 1755; and "corrections" have been added to the theory, to this day. But at the time, Kant didn't know anything about Lagrangian points (1772) so, when a new way of analyzing the event became available, nobody used it. Scientists already "knew" how planets came to be. They were told in 1755 by an eminent scientist. As you can see with some people, knowledge can defend ignorance.

Let me make it clear: How could the "ball of gas/dust" have conservation of angular momentum" if every single particle in the "ball" is individually following their own orbit without any bond to each other.



The "ball of space" itself containing the gas/dust doesn't rotate; just because it doesn't exist at all as a "ball."

— But sir, that would mean that a black hole doesn't rotate. Is that possible?

— Would you like to verify?

— It might be very fascinating, I think, sir.

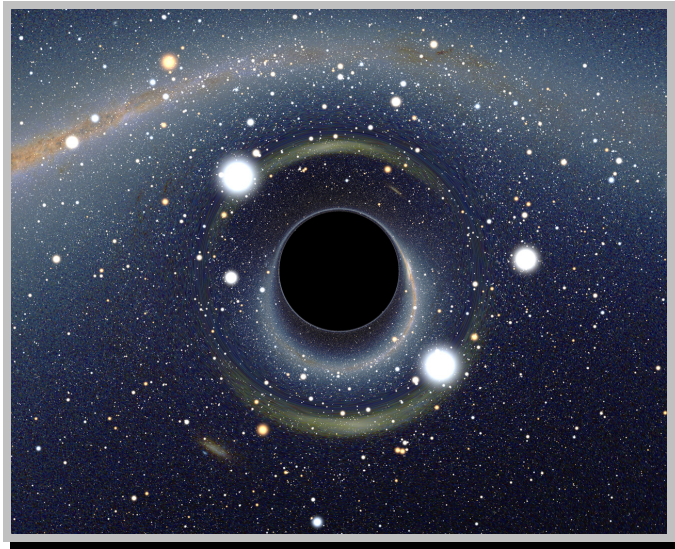
— Then, if everyone agrees, we'll do it tomorrow.

— We all agree, sir.

— Very well; have a wonderful evening everyone.

## Chapter 17

# Too much mass energy pushes you into a black hole



Source Wikipedia (black hole)

### Black hole formation

In this chapter we will deal a bit more with what is known officially about star evolution; which is quite impressive, I must say. But, sadly enough, it doesn't possess the information we gathered since the beginning of this book. Maybe will it help us to have a better understanding of the whole formation event?

From what I know and according to Einstein general relativity, a Black hole is the maximal deformation of the geometry of a particular volume of space-time. This is an excellent basic description of the event to start scrutinizing it.

Since matter occupies space, that deformation of the volume of space-time extends way down to its center of gravity. This structure seems to mean that the distortion in question is the result of something acting on the center of gravity itself and not the result of the presence of a bulk of matter.

And that means that the deformation is not, at all, caused by the presence of matter floating in space, like a bowling ball placed on a mattress suggests. As a matter of fact, if you look, for example, at the M31 galaxy (Andromeda) where there is a black hole in its center, the galaxy doesn't have the form of a funnel. You can enter the Black hole from either side of the galaxy. But you certainly won't get through, and emerge on the other side.

The first assertion we must accept is that; if it's not the quantity of matter that deforms space-time, it has to be the next best bet: the mass-energy of that amount of matter. And we can surmise that the "mass-energy" directs itself toward the center of gravity of that quantity of matter. To support this view, just remember that the mass of a proton consists of its three internal quarks for 1% and its inner energy for 99%. So there's no doubt that matter itself is not the cause of gravity.

So, about what kind of space-time deformation are we talking?

The only possibility is that the deformation is in the fabric of space-time itself and not at all in the fabric of matter. The reason might be that matter doesn't replace space-time; it only occupies it. The volume of matter, when occupying space-time, also becomes space-time in itself and the former space before the occupation doesn't disappear when matter appears.

First of all, the deformation of space-time is not at all in a downward direction; so the name Black "hole" is physically inappropriate. It is certainly not a "hole." Instead, we should talk about a "Black ball"; because the circular event horizon of a Black hole doesn't represent a flat surface; it poses a volume of space-time: a "sphere."

So, again, what can we say about the fabric of space-time?

There's only one thing we can be sure of; which is that space-time has a metric. And, it's easy to understand that the expansion of the universe is precisely the progressive growth of that metric. We've already seen that this increase is the result of duplication of Planck's metric. But what we are talking about here is of distances able to serve as measurements. For example, Hubble's constant has a metric of one megaparsec. But what does that mean? What does it look like?

To find out, let's say we choose a metric (a length) of one foot (Hubble's constant has a metric of one megaparsec). The continuous growth of that metric (or the duplication of its 1-inch base metric) will result in the fact that our foot will gradually become a foot that measures 13 inches -> 14 inches -> 15 inches and so on. But it will still be "a foot" (when we say; "a foot and a half," we're still talking about a "foot"). That's what the expansion of the metric of the universe is. The whole thing started when the universe had a diameter of  $10^{-35}$  meter; and the date was:  $10^{-43}$  sec after time = zero. And the universe of that epoch is still the same universe today (plus its entropy).

So what happens if we choose one precise point of the fabric of the universe and we block the growth "movement" at that point?

I'd say that the expansion of space-time will stop for that point and a deformation will occur around it because the surroundings of the location will continue to expand. But we've already seen that the fundamental metric cannot grow and has to duplicate. This condition means that the duplication being stopped at one point, it regains reproducing "speed" gradually, restarting at the blocked point in question.

Let's say that we stopped the expansion of our chosen point at the moment where our metric had grown to the size of two feet. In preventing its growth, we have obtained a metric of space-time that is now "stable." And this is only at the level of ONE basic space metric since we've just said that duplication restarts gradually increasing speed. But that is not exact at all since the result we get is a whole volume of space-time that is kept from expanding. That whole volume of space-time doesn't change its metric anymore; even though the rest of the universe still expands.

That is exactly the situation in which we observe our space-time from the level of the galaxies down to the level of quarks. We live in a volume of space-time where its metric is stabilized (stopped). And that volume of stable space-time is our galaxy and all galaxies. So where is the error in our description?

We wouldn't be able to find that error if we hadn't made all the observations and analyses since the beginning of this book. Now we can say that the error is in considering space and time as a whole. They are two separate things even if incorporated one into the other. In fact, it is a certitude: Time began before space appeared; which is a "fact" scientists rarely, if ever, consider. Most simply they adopt the "free" affirmation that space and time appeared together.

So when mass-energy stops expansion, it stops the whole volume of expanded space it controls; which is inside the border of its "active field." It is evident that this area doesn't extend universally; otherwise the whole universe would have a curved topology, and it's proven that our universe has a flat topology. Furthermore, our universe has a flat physical topology even where gravitation is manifested. Our whole universe is "flat." So what can be the exact situation of space-time in such conditions?

There's only one logical answer possible. Space has a flat topology because it is never distorted by mass-energy. So: "Get that bowling ball off my bed sheet!"

This conclusion leaves the space-time distortion to the exclusivity of "Time." And this is a confirmation of what we've seen so far. Mass-energy "acts" on Time; and what it does, is block a volume of space on a certain point of the expanding Time arrow. It doesn't do anything to whatever else.

Now; let's choose a Time blocked volume of space that is occupied by a great big star. The "center point of gravity" of the space occupied by that star, with its surrounding space inside the gravitational field controlled by the star's mass-energy, is "frozen" in the expanded status it had attained when blocked on an instant of the Time arrow. That volume of space doesn't "grow" anymore. It becomes "stable." And so is the rest of the galaxy that became stable at a previous epoch, blocked in Time by its own mass-energy manifested

on its center of gravity; which event confirms, surprisingly, that galaxies formed before stars.

What we now are going to do, is destabilize that star by adding "mass-energy" to it. To get that result, all we have to do is accumulate matter particles, containing mass-energy, on the surface of the star so that the energy of those particles joins the mass-energy of the star by uniting with the star's center of gravity, to put "pressure" to it.

Adding mass energy increases the "compressing action" on the centre of gravity of the star's blocked volume of space. So gradually, our point "center of gravity" of the star, starts to "back up" in its tracks previously covered on the Time arrow. This event of backing up on the Time metric is called "collapsing." But everybody until today thought that "collapsing" was a decrease or a "fall in" of the space metric. Some didn't even go that far in their "thoughts process" and advanced that "collapsing" was a decrease in matter's volume; stating that the star's matter was "falling on itself"; if that could, logically, ever mean anything. I've tried falling on myself for decades; the best I could do was falling on my shadow.

Either way, when we have added enough mass-energy to our star, its volume of matter occupied space will begin backing up in time, adjusting itself to the former density of energy of previous epochs. If the process stops soon enough, the star will just become a more massive dense star. If not, the energy density will rapidly continue to compress the space basic metrics, and those at the center will keep on being "crushed" by that continuously augmenting pressure. While passing through opposition reactions encountered, it will regress crushing back to the size of the original metric it started from; the one which has (or had) the size of  $10^{-35}$  meter.

We have now obtained a "Black hole" with its singularity that no one can describe.

We must note that the actual description we just developed, shows that the production of a Black hole is exactly the reverse process of the production (or the evolution) of the universe. So whatever mathematics says, while describing a black hole, that doesn't correspond to the developments of the universe since 13, 7 billion years, has high chances of being wrong.

Let's have a look at the stages of the formation of a black hole to try to identify those opposite reactions encountered while collapsing:

NASA's site has a section entitled "How do black holes form?" But the paragraph doesn't say anything about the formation itself. It only stipulates when different black holes formed. If you keep on searching their site, you won't find any description of the forming of a black hole except the story of the initial idea that was developed by Karl Schwarzschild in 1916.

So scientists have added to describing black hole that "existed" in Schwarzschild's mind, instead of describing how they were formed. We will soon see, a little bit further on, that a few researchers addressed the problem anyway. For now, we will look at Schwarzschild description on NASA's site:

[https://apod.nasa.gov/htmltest/gifcity/bh\\_pub\\_faq.html](https://apod.nasa.gov/htmltest/gifcity/bh_pub_faq.html)

His description was a solution to a possible shape of space-time that would describe the effects of gravity "outside" a spherically symmetric, uncharged, nonrotating object.

*"What such a solution really looks like is a "metric," which is a kind of generalization of the Pythagorean formula that gives the length of a line segment in the plane.*

Put more basically; a metric is whatever chosen length to measure other things.

*The metric is a formula that may be used to obtain the "length" of a curve in space-time. In the case of a curve corresponding to the motion of an object as time passes ("time arrow"), the "length" computed by the metric is actually the elapsed (passed) time experienced by an object with that motion."*

As we can see Schwarzschild was a minute away from the "correct solution." But let us keep on this description:

*"Now, at small radii, the solution began to act strangely. There was a "singularity" at the center,  $r=0$ , where the curvature of space-time was infinite. Surrounding that, was a region where the "radial" direction of decreasing  $r$  was actually a direction in "time" rather than in space."*

He had the answer right in front of his nose and refused to see it, or maybe he did see it (as I suspect), but couldn't have it accepted by his peers; who really knows? The "fact" is nobody thought anymore about it, except accepting the "singularity" as a mathematical "artifice."

*"Anything in that region, including light, would be obligated to fall toward the singularity to be crushed as tidal forces diverged. This was separated from the rest of the universe by a place where Schwarzschild's coordinates blew up, though nothing was wrong with the curvature of space-time there."*

In fact, not of space-time; but strictly nothing wrong with "space."

*"This was called the Schwarzschild radius. Later, other coordinate systems were discovered in which the blow-up didn't happen; it was an artifact of the coordinates, a little like the problem of defining the longitude of the North Pole (which exists but has a zero value). The physically important thing about the Schwarzschild radius was not the coordinate problem, but the fact that within it, the direction into the hole became a direction in time."*

Simply because "space" had disappeared.

*"Nobody really worried about this at the time, because there was no known object that was dense enough for that inner region to actually be outside it, so for all known cases, this odd part of the solution would not apply. Arthur Stanley Eddington considered the possibility of a dying star collapsing to such a density, but rejected it as aesthetically unpleasant and proposed that some new physics must intervene. In 1939, Oppenheimer and Snyder finally took seriously the possibility that stars a few times more massive than the sun might be doomed to collapse to such a state at the end of their lives."*

We will see how they treated that "fact" of altered Time metric.

*"Once the star gets smaller than the place where Schwarzschild's coordinates fail (called the Schwarzschild radius for an uncharged, nonrotating object, or the event horizon) there's no way it can avoid collapsing further... The event horizon is a point of no return."*

And we explained it previously, by the added "square light-speed energy" released towards the center of gravity, when pre-matter particles (quarks) are crushed by gravitational effect.



*"In 1971 John Archibald Wheeler named such a thing a black hole."*

And that's it, concerning their formation. Afterward, the articles make you fall into a black hole and leaves the free imagination to proceed with "infinities" of space and "forevers," which definitely involves Time, but is continuously neglected for space. In other words, it doesn't get anywhere.

But some scientists did address the problem seriously. One of them is named Subrahmanyan Chandrasekhar. He was awarded the 1983 Nobel Prize for Physics, with William A. Fowler, for his theoretical studies on the physical processes of importance to the structure and evolution of the stars. His mathematical treatment of stellar evolution yielded many of the best current theoretical models of the later evolutionary stages for massive stars and black holes.

The Chandrasekhar limit is named after him, and this limit is a stage level in the production of a black hole.

Stellar evolution is the process by which a star changes over the course of time. Depending on the mass (in fact mass-energy) of the star, its lifetime can range from a few million years for the most massive, to trillions of years for the least massive, which is considerably longer than the age of the universe.

So who can say, after reading this that mass energy doesn't involve Time? How can such evidence be discarded? It's almost unbelievable.

All stars are born from collapsing clouds of gas and dust, often called nebulae or molecular clouds. Over the course of millions of years, these protostars settle down into a state of equilibrium, becoming what is known as a main-sequence star.

Nuclear fusion powers a star for most of its life. Initially, the energy is generated by the fusion of hydrogen atoms at the core of the main-sequence star. As the preponderance of atoms at the center becomes helium, stars like the Sun begin to fuse hydrogen along a spherical shell surrounding that core. This process causes the star to gradually grow in size, passing through the subgiant stage until it reaches the red giant phase. This procedure demonstrates that a helium atom has a greater volume than two hydrogen atoms. Otherwise the star wouldn't gain size. Which also confirms the surplus in size of the helium gravitational field, compared to the sum of two hydrogen gravitational fields (single proton nucleus), by

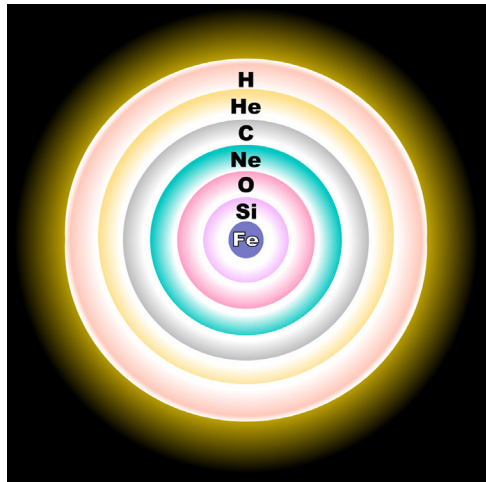
the increased pressure action of nuclei particles (proton and neutron) on the new helium product's center of gravity. This increased pressure is comparable to the "binding energy" of nuclei.

Once a star like the Sun has exhausted its nuclear fuel, its core collapses into a dense white dwarf, and the outer layers are expelled as a planetary nebula. Stars having around ten or more times the mass of the Sun can explode in a supernova as their inert iron cores collapse into an incredibly dense neutron star or black hole.

Let's insert a note about giant red stars:

*"After a star has consumed the helium at the core, hydrogen and helium fusion continues in shells around a hot core of carbon and oxygen. The star follows the asymptotic giant branch on the Hertzsprung–Russell diagram, paralleling the original red giant evolution, but with even faster energy generation (which lasts for a shorter time). Although helium is being burnt in a shell, the majority of the energy is produced by hydrogen burning in a shell further from the core of the star."*

This tells us that the "inner" structure of a star is similar to the "internal" structure of an atom; meaning "shells," which as we know, are Time defined different kinetic energy **densities** around a nucleus. We will keep this in mind. The following is what it looks like with an iron core star. You will see that at this stage, a star has six shells beside the iron core itself; while an Iron atom has only four shells:



The onion-like layers of a massive, evolved star just before core collapse. (Not to scale.) WIKIPEDIA

Starting from carbon-burning onwards, energy loss via neutrino production becomes significant, leading to a higher rate of reaction than would otherwise take place. "Via neutrino production" means

simply that the star gets rid of kinetic energy. Neutrinos are nothing else than a quantum of kinetic energy.

This iron core is under tremendous gravitational pressure. As there is no fusion to raise the star's temperature further to support it against collapsing, it is supported only by **degeneracy pressure of electrons**. In this state, the matter is so dense that further compaction would require electrons to occupy the same energy states; which is forbidden for the electron; a phenomenon called the Pauli Exclusion Principle.

*"In star evolution, there is a phase on the ascent of the asymptotic-giant-branch where a deep convective zone forms and can bring carbon from the core to the surface. In this way a carbon star is formed. In more-massive stars the stars become more luminous and the pulsation period is longer, leading to enhanced mass loss (matter or mass energy?), and the stars become heavily obscured at visual wavelengths."* (Then it must be matter that's involved).

*"Post-AGB stars ultimately reach the tip of the asymptotic-giant-branch and run out of fuel for shell burning. They are not sufficiently massive to start full-scale carbon fusion, so they contract again, going through a period of post-asymptotic-giant-branch super-wind to produce a planetary nebula with an extremely hot central star. The central star then cools to a white dwarf. **The expelled gas is relatively rich in heavy elements** created within the star and may be particularly oxygen or carbon enriched, depending on the type of the star. The gas builds up in an expanding shell called a circumstellar envelope **and cools as it moves away from the star, allowing dust particles and molecules to form.**"*

I finally found what I was looking for; which is the answer to the question: "When were heavier elementary particles liberated in space?" I was wondering if an "explosion" of a star was needed, which would have required finding when such "explosions" had appeared in the early universe. It seems that explosions were not particularly needed.

*"In massive stars, the core is already large enough at the onset of the hydrogen burning shell that helium ignition will occur before electron degeneracy pressure has a chance to become prevalent...*

*These stars are unlikely to survive as red supergiants; instead they will destroy themselves as type II supernovas."*

Which means that these supernovas exploded. A star must have at least eight times, and no more than 40–50 times, the mass of the Sun to undergo this type of explosion. Note that type II supernovae are not observed in elliptical galaxies. Why? It doesn't say, but we can consider it as a "fact."

So coming back to our subject, the Chandrasekhar limit is the maximum mass possible for a stable white dwarf star. This limit was initially ignored by the community of scientists because such a limit would logically require the existence of black holes, which were considered a scientific impossibility... at the time.

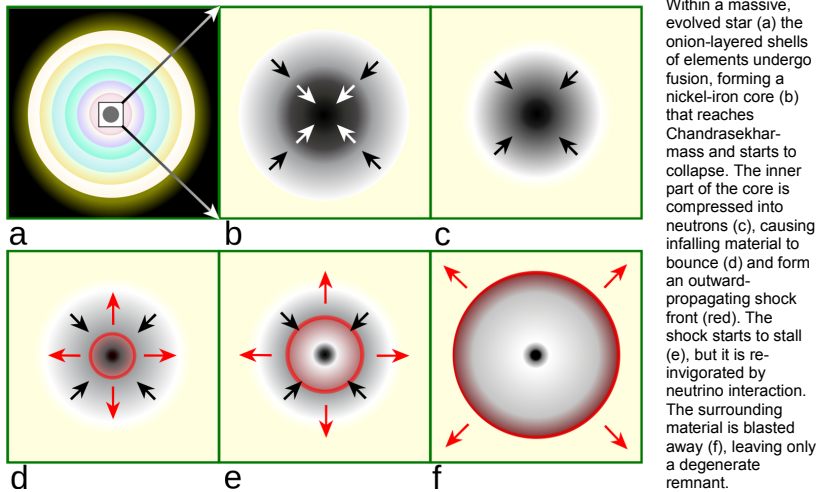
White dwarfs resist gravitational collapse primarily through electron degeneracy pressure; which only means that electrons oppose to their very best at the "falling" pressure from the surface of a star. By comparison, main sequence stars resist collapsing through thermal pressure.

The Chandrasekhar limit is the mass above which electron degeneracy pressure in the star's core is insufficient to balance the star's own gravitational effect. When they can't resist anymore, the electron takes refuge in a proton (in fact is pushed inside), transforming it in a neutron. We have already seen the reality, which is an Up quark that changes in a Down quark by adding  $3/3$  of negative charge (full  $-1$  negative electron charge versus  $+2/3$  positive charge) leaving him with a  $-1/3$  negative charge. Consequently, white dwarfs with masses greater than the limit would be subject to further gravitational collapse, evolving into a different type of stellar remnants, such as a neutron star or black hole. However, white dwarfs generally avoid this fate by exploding before they undergo collapse. Which explosion means that electrons refuse to merge with protons and the mass-energy, pushing the electrons, transforms into kinetic energy, provoking an explosion. Stars with mass-energy under the Chandrasekhar limit remain stable as white dwarfs, and stars with more mass-energy than white dwarfs continue collapsing.

Let's continue with that white dwarf too massive to explode (mass-energy is so intense that it can constrain the explosion).

When the core's mass exceeds the Chandrasekhar limit, degeneracy pressure can no longer prevent collapsing. The outer part of the core reaches velocities of up to 70,000 km/s falling toward the gravity center of the star (that's the result of kinetic “light-speed square” energy ( $Mc^2$ ) released by crushing pre-matter particles). The shrinking core heats up and produces gamma rays that decompose iron nuclei by “jackhammering” them into helium nuclei and free neutrons. The process is called photodisintegration. As the core's density increases, electrons and protons merge via inverse beta decay, expelling neutrons and kinetic energy as neutrinos (and anti-neutrinos). Because neutrinos can escape from the core carrying away kinetic energy of former electrons that lost their charge, the released mass energy accelerates the collapsing, which proceeds over milliseconds. As the core detaches from the outer layers of the star, some of these kinetic neutrinos are absorbed by the star's outer layers and provoke the supernova explosion. And more elementary particles are propelled in space.

Expelling kinetic energy by neutrinos (and anti-neutrinos) relieves the core and bring its temperature down. Through a process that is not clearly understood (but is now clearer to us), about 1% of the energy neutrinos released is reabsorbed by the outer layers, producing the supernova explosion. I maybe should have mentioned that there are two successive ejections of neutrinos, but that would have brought me another “why” that I didn’t want to address yet.



SOURCE : WIKIPEDIA.

When the progenitor star is below about 20 solar mass, the degenerate remnant of the core collapses is a neutron star.

Above this mass, the remnant collapses to form a black hole.

So, as you can see, there are several limits to be overcome to create a black hole; but all of these boundaries are related to the regression of metrics in Time towards the “past” already traveled by particles on the Time arrow.

The major unsolved problem with Type II supernovae is that it is not understood how the burst of neutrinos transfers its energy to the rest of the star producing the shock wave which causes the star to explode. The answer is simpler if you consider neutrinos as kinetic energy “surface” particles; because kinetic energy “acts” on whatever it touches; we can also say “integrate” and put it in motion.

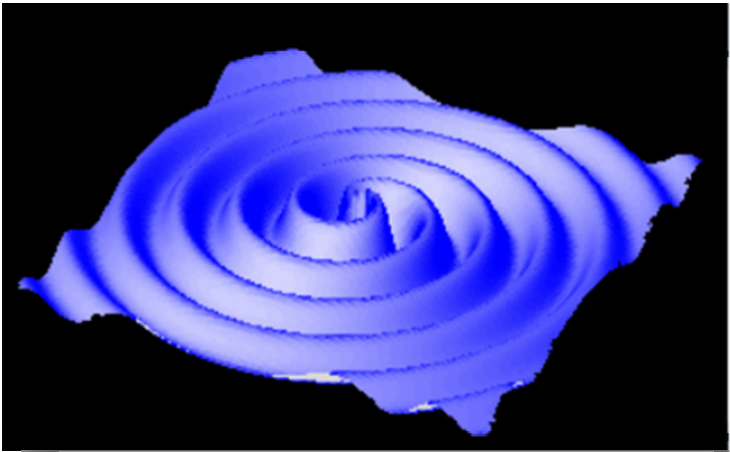
Heavier elements than iron are formed during this explosion by neutron capture, and from the pressure of the neutrinos pressing into the boundary of the “neutrino-sphere,” seeding the surrounding space with a cloud of gas and dust which is richer in heavy elements than the material from which the star originally formed.

This, I guess, should conclude our investigation on the forming of a black hole.



## Chapter 18

# Gravitational waves



Source Wikipedia (gravitational waves)

— Excuse me, sir; could you tell us about that discovery confirming the existence of gravitational waves?

— Certainly. As for myself, I see a few problems regarding the recognition of that discovery, even though it is challenging to deny it.

Mainly because the whole event is based on incorrect, not to say wrong, premises.



Gravitational waves are supposed to be ripples in the curvature of space-time; and, as we found out, space-time isn't curved.

They are expected to be “gravitational interactions,” and we know that gravitation is “inert”; it doesn't possess any energy to interact.

So let's make a brief review of their history:

Gravitational waves were thought of, first in 1893 by Oliver Heaviside; then Henri Poincaré presented his own idea on the subject in 1905. Both were using Newton's notion of gravitation as their underlying claim.

Even though Einstein was skeptical about Poincaré's idea on the subject, he kept the idea and pushed it to the point where he concluded that there were three types of gravitational waves; of which he doubted afterward.

In 1922 Eddington proved that two of those Einstein's waves were pure imagination; mocking that they propagated at the speed of... thought.

In 1936 Einstein submitted a paper to Physical Review claiming that gravitational waves could not exist in GR. Because of a personal disagreement, he withdrew the paper and came back later with another article stating the contrary. What made him change his mind? Nobody knows.

An argument from Richard Feynman in 1957 won the case, and gravitational waves were accepted as “possible.” Research to detect those waves started immediately (creating jobs). After a few “close calls,” by the late 70's, it was admitted that gravitational waves were never observed... yet.

In 1979, results were published detailing measurement of the gradual decay of the orbital period of the Hulse-Taylor pulsar, which fits precisely with the loss of energy and angular momentum in gravitational radiation predicted by the accepted interpretation of general relativity. That helped to restart the research.

Finally, on February 11, 2016 – The LIGO Scientific Collaboration announce that they had detected gravitational waves on September 14, 2015, from a 410 megaparsec (1.3 billion light years away, and 1.3 billion years ago) distant merger of two black holes. Confirmations

ensued with a second and third detection in following successive years. So we can now say that black holes do merge sometimes.

Gravity not being energetic, I doubt very much of production of “waves” which would have to carry energy. So your question becomes most pertinent concerning the gravitational notion problem.

The main error in the concept of gravitational waves, to my point of view, is that scientists consider space-time as a “unit” when, in fact, they are two independent entities.

The first problem with “gravitational waves” is, like I already specified that gravitation doesn’t have any energy. It is “passive.” It is strictly and exclusively a consequence of a deformation of space-time. In fact, we found out that the deformation is not even in space but strictly in Time. The proof is that Andromeda galaxy has a disk shape space that is not deformed whatsoever by its black hole center.

The actual interpretation of space-time is rather funny. It’s as if, when looking at a bowl of soup, you said: “I’ll eat that bowl of soup”; but, evidently, you’ll never eat the bowl but strictly the soup.

Such is space-time considered in science; it is space (soup) traveling on the Time arrow (the bowl); and when we interpret space-time, we keep on gulping up the soup and the bowl.

We have to consider, in our notion, that they are independent of one another even though we need to indicate each of them to design a point 1) in space, and 2) in time. As you can see, we don’t have to force space and time to separate; they do so by themselves.

Gravitational effect is the results from blocking the expansion of a particular volume of space, on a definite point of the Time arrow. It does so because “mass-energy” is oriented toward a single point in a volume of space, called “center of gravity.” From that moment on (when that volume is blocked), space in that volume doesn’t expand anymore (in fact the volume of a galaxy).

Between galaxies (in flat space topology) the only energy existing should be kinetic energy which provokes expansion. In reality, this increase isn’t made by space “growth”; it’s a duplication process of the fundamental metric of space, which is  $10^{-35}$  meter. As we saw, this fundamental metric could not simply expand, since half of that

length was impossible to exist (it couldn't "grow" to one length and a half); so it duplicated.

Now, what could be those variations in length that were observed and considered as "gravitational waves" by LIGO?

The only logical answer (LOGI) would be that they are vibrations traveling through those duplicated fundamental basic metrics; because they cannot be "variations in length" of the basic space metric.

Now, could merging black holes provoke these kinds of vibrations?

It seems like it could since they were detected. But then it would mean that those vibrations would have traveled through light-speed multiplying basic metric of "flat" space, controlled by kinetic energy that gives everything a "flat" topology; which condition seems to me, quite a big order to fulfill. Light waves do so, but never forget that light waves are "energy"; they are not "passive" basic metrics.

If that is the case, it's difficult to explain how they are transferred; but anyhow, the transfer cannot be other than by a vibration of space basic metric (which cannot vibrate because that are of invariant size).

If (to me it is: since) it's not the case; then the vibrations belong strictly to the Time flow. And there are a lot fewer obstacles to its transfer through vibrations of the Time arrow; which, I must insist, time is what represents the distance from which those "waves" came. It's a distance in Time; not in space. It's like looking at a video of yourself when you were five years old; you examine yourself far away in Time; even if you see yourself in the space of that epoch. In fact, the two black holes, which merged 1, 3 billion years ago, aren't even where you see the merging occurring when you see it; they are long gone from that position. Which, again, confirms the Time effect and rejects the spacing effect.

I hope that this will help to understand the event.

— It does; thank you, sir.

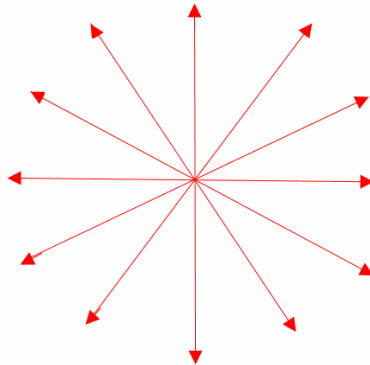
## Chapter 19

# My mind is still struggling

### Time arrow trajectory

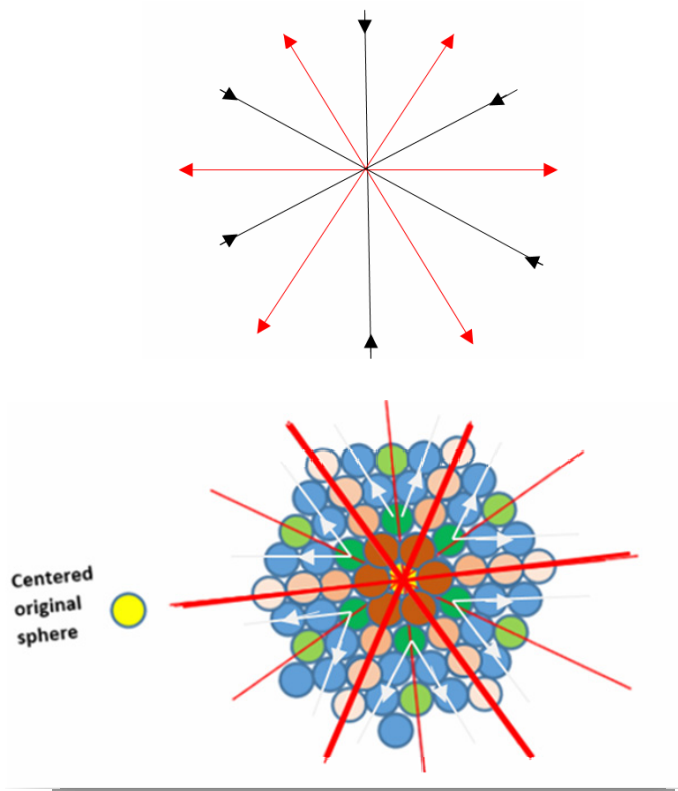
I've got to confess something. My mind has been struggling about the trajectory in space curved by the effect of Time. I didn't completely and clearly "grasp" the topic, even with our precedent figures. So I dipped in the problem once again.

Here's a drawing showing the Time arrow trajectory in "flat" space, at the Big bang:



And here is the result after a similar to gravitational effect appropriated half of its manifestation as we observed when duplicating space's basic metric. Note that all gravitational effects are perpendicular

to expansion effects (like magnetic field perpendicular to electronic field producing electromagnetism):



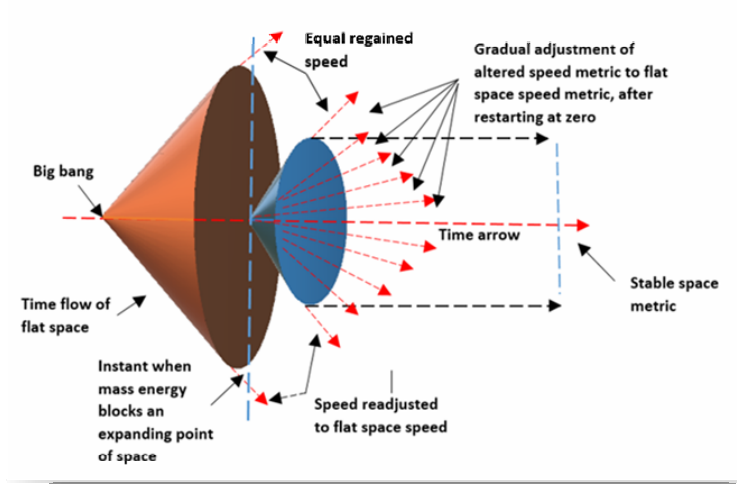
The drawing shows that the “almost” gravitational effect couldn’t compete with the energetic flow of Time and had to “occupy” less intense flows where space metrics didn’t line up correctly.

On the other hand, when Time is blocked, it restarts right away and keeps on forward as shown in the drawing by white lines; which is important information because it confirms that, when stopped by mass-energy on an “instant” of the Time arrow, Time restarts instantly adapted to the new situation. Which means that each “Time altered” volume of space possesses its line arrow that gradually adjusts to the “flat space” Time arrow.

Now the representation of Time in “flat” space is a constant stable progression of the basic space metric duplication; flat space being 70% of the universe. But what about Time where space is affected by gravitational effect?

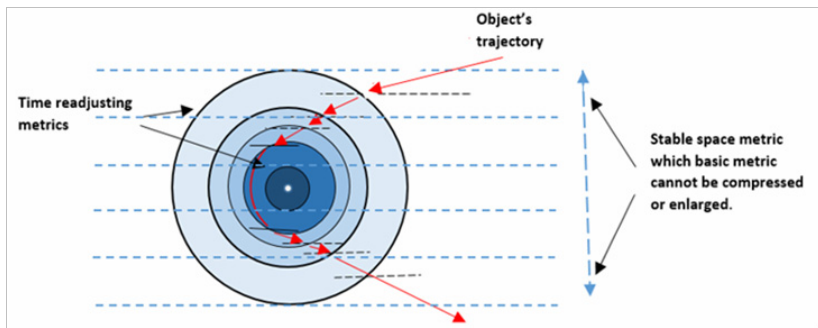
As we’ve already seen, space remains “flat” despite the gravitational effect; but Time is “altered.” So how can we show “altered” Time and its effect?

The answer is a question of speed. Flat space Time rate is light-speed. Mass-energy blocks that Time rate which, then, has to “restart” at “zero” and gradually regain speed. An event that gives us the following drawing:



So, as we can see, the gradual acceleration of Time to regain light-speed, produces the continuous increasing metric of Time, starting at the center of gravity toward the circumference of the affected volume of space. The fact is that the radius of the volume of space affected, is defined by the distance Time has to travel to regain light-speed.

Now, if we look, from the front to the gradual adjustment of speed metrics that had to restart at speed = zero, we get the following through which I made an object travel, where entry of a Time metric corresponds to the exit of precedent Time metric:



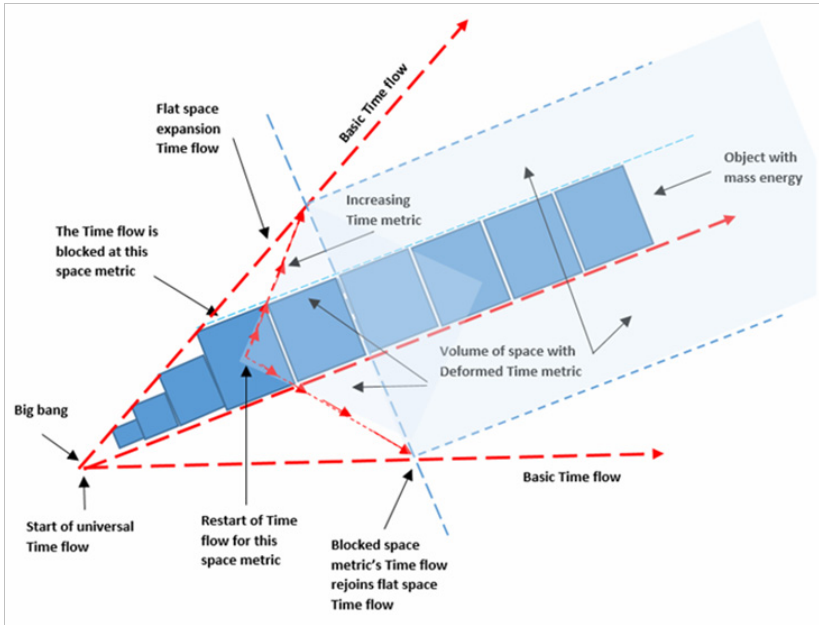
And the object adopted a curved trajectory; but I was not entirely convinced it was right, since space through which the object was going, had a uniformed stable metric. So it made me think a bit more of the object's motion.

And then, it suddenly came to me, that the trajectory of a movement is a displacement in space according to the Time allowed for it. **If you don't give it Time, it cannot "move."** Which means that a physical displacement is subjected strictly to "Time," and not at all to "Space."

And if the Time flow, allowed to an object's motion, decreases or increases, the physical displacement has to follow the Time "flow's" direction, it's different intensities, and it's different lengths; which causes the curving trajectory.

And my mind could rest a bit.

But it didn't rest for long, and I had to draw myself another sketch, presenting the event differently but getting to the same Time metric increase:



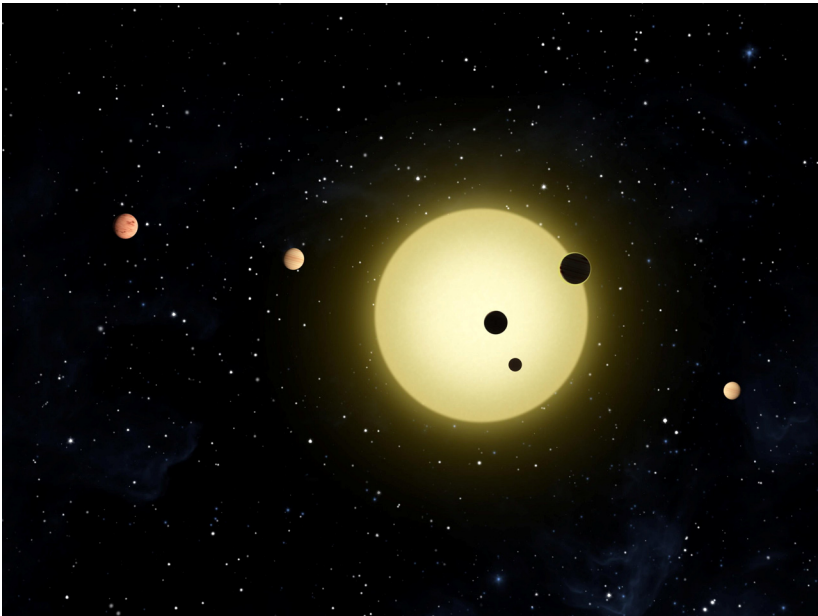
Note that this indicates that gravity is not universal but local.





## Chapter 20

# From the Kepler spacecraft



Artist's conception of a simultaneous transit of three planets before Kepler-11 observed by NASA's Kepler spacecraft on Aug. 26, 2010. Source : WIKIPEDIA.

Today I'll start by doing the job of a scientific reporter.

— Here we go with FAKE news, once again.

— No; Donald; I'll give you're the straight thing; I promise.

— Thank you, sir.

— I'll supply you simple information on a planet system discovered by a satellite telescope given the task of finding exoplanets. That telescope was named after astronomer Johannes Kepler (1571 to 1630) best known for his laws of planetary motion. I don't know where it's going to lead us, but it's going to be fun to make a "mind trip nowhere," on such a beautiful day as today. So here we go.

Kepler is a space telescope launched on March 7, 2009, by NASA to discover Earth-size planets orbiting other stars. As of January 2015, Kepler and its follow-up observations had found 1,013 confirmed exoplanets in about 440 different star systems.

In November 2013, astronomers estimated that there could be as many as 40 billion rocky, Earth-size exoplanets orbiting in the habitable "corridors" of Sun-like stars and red dwarfs within the Milky Way. It is estimated that 11 billion of these planets may be orbiting Sun-like stars candidates. Mind you; it seems to me that, if it were searching for aliens, Kepler wouldn't do otherwise.

Of the nearly 5,000 total planet candidates found to date, more than 3,200 have been verified, and 2,325 of these were discovered by Kepler.

One dwarf star picked the attention of astronomers:

Kepler-11 is a Sun-like star slightly larger than the Sun in the constellation Cygnus, located at 2,000 light years from Earth. This star system, discovered in 2011, is the most compact and flattest systems yet encountered. It is the first discovery of a star system with six orbiting planets. All planets are larger than Earth, with the larger ones being about Neptune's size. The date of the image we have of that system corresponds to when Jesus was 11 years old; but he doesn't show on the picture, even though the system is called Kepler-11.

Kepler-11 is a yellow dwarf star that has 96% the mass of the Sun and 107% of its radius. It has a surface temperature of about 5663 K and is estimated to have the age of 8.5 billion years. In comparison, our Sun is 4.6 billion years old and has a surface temperature of 5778 K.

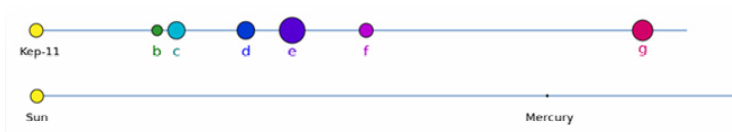
Note that Kepler 11 was born at an epoch when the density of the universe was twice as much as today and the universe was significantly “smaller”.

All of the planets orbiting Kepler-11 are larger than Earth, with the largest ones being comparable to Uranus and Neptune. The innermost planet, Kepler-11b, is ten times closer to its star than Earth is to the sun. The other planets, moving outwards, are Kepler-11c, Kepler-11d, Kepler-11e, Kepler-11f, and the outermost planet, Kepler-11g, which is twice as close to its star than Earth is to the sun. The inner five exoplanets have orbital periods between 10 and 47 days around the dwarf star, while Kepler-11g, the outer-most planet, has a period of 118 days. Mercury as a period of 88 days and Venus: 224.7 days; which corroborate our opinion that the sole velocity of the object decides of the orbit.

Simulations suggest that the mean mutual inclinations of the planetary orbits are about  $1^\circ$ , meaning the system is probably more coplanar (flatter) than the Solar System, where the corresponding figure is  $2.3^\circ$

The masses of planets “b” to “f” fall in the range between those of Earth and Neptune. Their estimated densities, all lower than that of Earth, implying that none of them have an Earth-like composition. A hydrogen/helium atmosphere is predicted for planets c, d, e, f, and g, while planet b may be surrounded by a steam atmosphere or perhaps by a hydrogen atmosphere.

On the picture, you have the relative size and positions of the six planets of Kepler-11, and of the innermost Solar System’s planet, Mercury, in comparison. The diameters of the planets (but not of the stars) are scaled up by a factor of 50.



Source: Wikipedia.

*“Contrary to some theoretical predictions, we infer (conclude) from current detections that the most numerous have masses similar to Neptune, and there doesn't seem to be the expected increase in number at lower masses,”* said lead scientist Daisuke Suzuki.

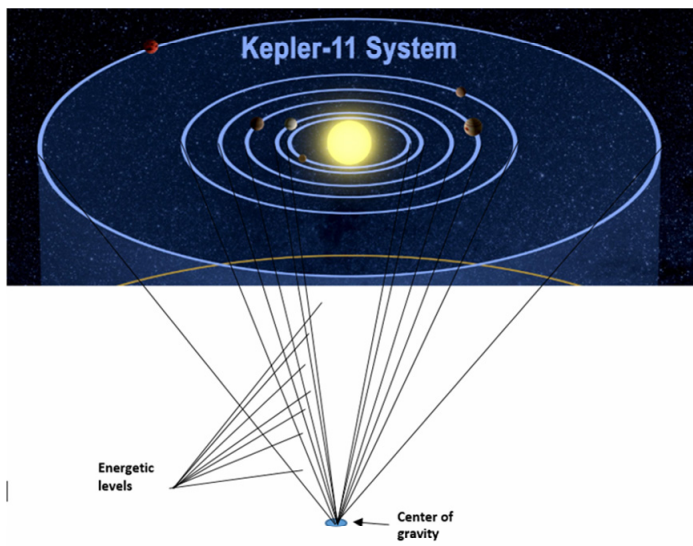
For a typical planet-hosting star with about 60 percent the sun's mass, the average microlensing planet is a world between 10 and 40 times Earth's mass. For comparison, Neptune in our solar system has the equivalent mass of 17 Earths.

Cold Neptune-mass worlds are likely to be the most common types of planets beyond the so-called snow line, the point where water remained frozen during planetary formation. In our solar system, the snow line is thought to have been located at about 2.7 times Earth's mean distance from the sun, placing it in the middle of the main asteroid belt today and between rocky planets and gas planets; which is exactly the exact appropriate place for a water world.

*"Beyond the snow line, materials that were gaseous closer to the star condense into solid bodies, increasing the amount of material available to start the planet-building process," said Suzuki. "This is where we think planetary formation was most efficient, and it's also the region where microlensing is most sensitive."*

Sorry, but I'll never believe that a snow line could be closer to a star than those planets are. You better improve the official description of the formation of planets.

Ok! That's it for my "coverage." Now let's analyze that planet system:

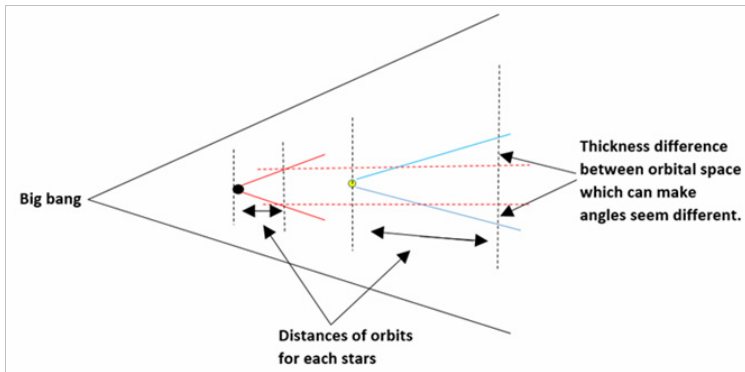


Source : Wikipedia and personal

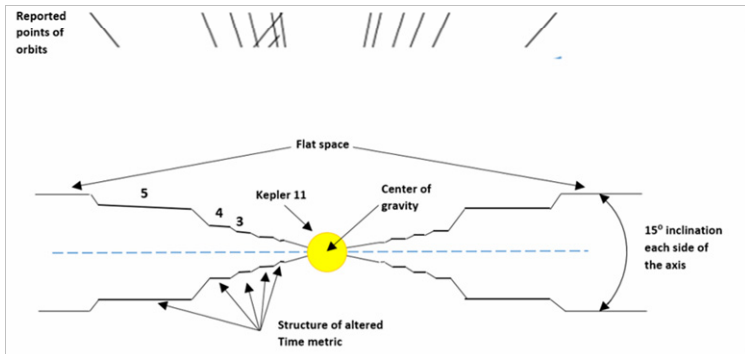
The energetic levels we projected here are the counterparts of electronic orbits which are found inside electronic shells. Which means that even if we base our drawing on the orbits of planets that are situated inside each orbital corridors, it can still give an idea of the structure of the “altered” Time metrics inside the affected volume of space.

To make a profile of that structure, we must remember that the Kepler’s planet system is twice as more “flat” than our solar system; which gives it at the most  $15^\circ$  each side of its axis. Which raises the question: Does an alteration gets “flatter” as it nears the center of gravity? If so, that would confirm the gradual diminution of the angle in the structure of formation of atoms we saw when we studied the opening of new shells.

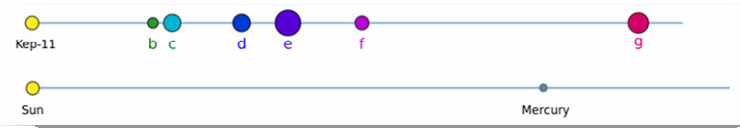
In fact, the angles don’t change but making the comparison with actual angles in twice more expanded space can make it seem “flatter”:



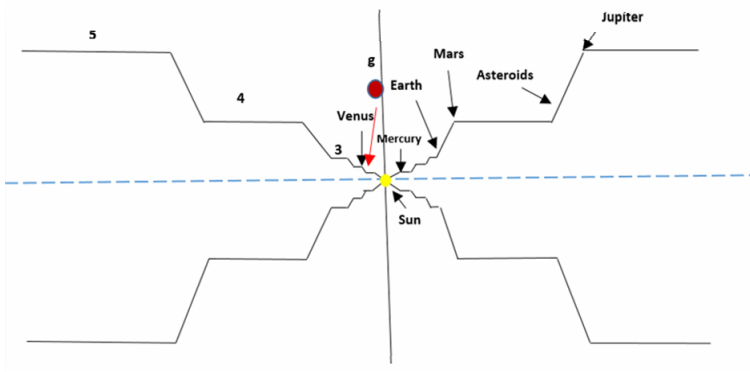
So here’s the profile of Kepler’s system:



We can compare this structure of altered Time metric to Earth's altered Time metric structure, remembering the following difference disposition between them:



Source : Wikipédia and personal



1st remark: The G planet of Kepler would be situated between Mercury and Venus in the sun structure.

2<sup>nd</sup> remark: Shells 3-4-5 are not identical in both systems, but both series show a progressive metric. Which indicates progressive metrics we didn't have yet, between Mercury and the Sun.

3<sup>rd</sup> remark: It is now evident that the size of planets doesn't influence the size of the metric; in either structure.

4<sup>th</sup> remark: The previous remark indicates that only the energy density is involved in the Time "alterations"; which is also the case with the electronic shells. The question becomes: To what the energy density of the "corridors" orbit is related? We know that with electron clouds, it's related to their "inner" kinetic energy.

5<sup>th</sup> remark: And the answer is: Concerning our solar system, the relation is associated with the planet's orbit velocity. The nearer the planet is to the Sun, the greater is its velocity; which refers to the

“inner” kinetic energy of each planet. Which also means that the “blurred” kinetic energy of electrons has “materialized” in the planets.

6<sup>th</sup> remark: This then means that whatever the mass energy of the object, only its kinetic energy decides where it orbits in an “altered” Time metric; which confirms that the “shell” is related to the speed that the Time flow allows in that area. For example; the mass energy of Jupiter is 75% of the whole system’s mass after subtracting the Sun’s mass; and its velocity is twice as fast as Uranus, 2.4 times faster than Neptune, but a bit less than half the speed of Earth which is 318 times less massive. Must we add that 5 of the six planets of Kepler are between 10 to 40 times more massive than Earth and at least 4 of them orbit closer than Mercury? So the fact remains that the only possible relation left is that connection, between object’s velocity and the Time arrow’s increasing speed, defining the “shells” (or corridors) energy density.

7<sup>th</sup> remark: The previous remark confirms that whatever the mass is, orbiting around a star, it doesn’t affect the total mass energy of the system. Otherwise, there would be a relation between the mass of the object, its orbital velocity and the location of its orbit in the system. In other words, if mass-energy were involved, Jupiter would be orbiting the closest of all planets to the Sun.

8<sup>th</sup> remark: Just by looking at the two drawings, both structure of systems indicate clearly that gravity is not inversely proportional to the square of the distance; which condition commands, uselessly, the need for dark matter. If dark matter were required, the planets of Kepler-11 wouldn’t be able to move as fast as they do.

9<sup>th</sup> remark: This brings me back to compare gravity to official “forces” and make the relationship with the epoch those forces appeared:

*“The gravitational attraction is approximately  $10^{38}$  times weaker than the strong force,  $10^{36}$  times weaker than the electromagnetic force and  $10^{29}$  times weaker than the weak force.”*

Surprisingly, “**approximately**  $10^{38}$  times less than the strong force” brings us near the appearance of the gluon at  $10^{36}$  sec which almost instantly made appear electromagnetism valued at  $10^{36}$  times stronger than gravity. If the density of that epoch is calculated relative to the actual density which then is 1,  $10^{36}$  stronger means  $10^{36}$  more dense;



which puts gravitation 10<sup>36</sup> more efficient and erases the concept of forces from the map, once and for all. Furthermore, we obtain here, once again, another relation between Time flow and energy density.

10<sup>th</sup> remark: Coming back to information from my previous “reporting”:

*“For a typical planet-hosting star with about 60 percent the sun’s mass...(when further on it says) 96% the mass of the Sun and 107% of its radius.”*

I’m wondering how scientists can find the mass of this star when, with galaxies, they have to add all stars orbiting in it and, since it’s not enough, have to add dark matter to “stabilize” the galaxy? It looks like, here, they had evaluated the mass previously and afterward, corrected it by adding 36% more mass; probably because of the big planets.

11<sup>th</sup> remark: Kepler is almost twice as old as our Sun and situated at 2000 light years from us. I’m wondering if, 2000 years ago, Kepler’s system was nearer to us or farther from us. One thing is sure; the ancients knew of the Cygnus constellation of which is part Kepler’s system. Alpha Cygni, called Deneb, one of the largest and most luminous A-class stars known, is located about 3200 light years from us (2000 years ago it was only 1200 light-years away); but some parts of the constellation are 750 light years from the Earth. But since a constellation is a “drawing in the sky,” it has no relation whatsoever with distances and Time.

12<sup>th</sup> remark: As to the formation of planets, our proposed Lagrangian point’s explanation still subsists, but indicates that tidal effects can be produced quite nearer to their source than we thought. Which event would be natural when there are no “forces” whatsoever involved. The highest confirmation of this would be the fact that the nearest planet is hydrogen and the other five are helium based; which all would have been accreted by the star if no Lagrangian points had existed to keep it from “falling” to the star. So these Lagrangian points are not related either to “attraction” but, like we demonstrated, to Time tidal effect.

Furthermore, those planets are bigger than ours because they started accreting matter sooner than our planets did, after the beginning of accretion of their sun. Probably because, in this event, the center of

gravity of another object was closer to this sun than it was with ours; and the explanation is, added time for expansion.

— Wow, Sir! This trip was somewhat of a nowhere; it brought us somewhere we couldn't have forecast. It confirms all we've said already. This is prodigious!

— I'm delighted with the outcome; I must say. I didn't imagine it would be that prolific. Well, ladies and gentlemen, we had a good day. Hoping to see you tomorrow in good shape. Thank you.

— Thank you, sir. See you in the morning. We'll let you drive, it's a promise. Have a lovely evening.

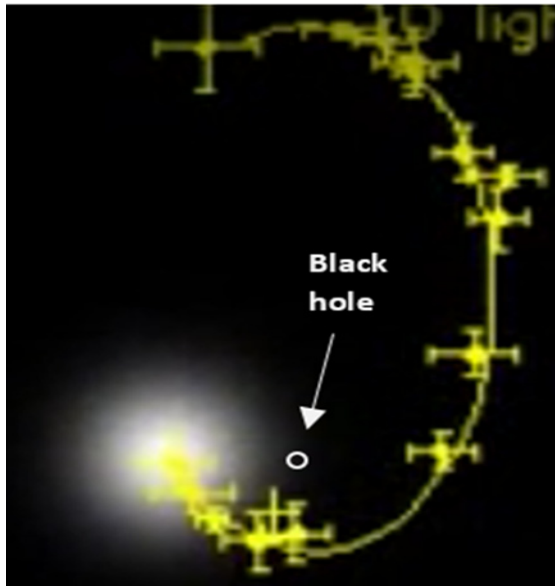


## Chapter 21

# Black holes

**G**ood morning everybody. As you've undoubtedly noted, my story has attained the present day situation of our universe. What is left to do is verifying if what we've found corresponds and explains what we observe today.

Let me show you a star named S2 that just orbited a black hole, gaining speed at its perigee. This event happened at the center of our galaxy we call Sagittarius A; and was filmed by astrophysicists. The film took 15 years to produce. The yellow trace you see in the picture is the trajectory of the star during those 15 years. I've added a white circle where the black hole is situated.



Source: Wikipedia.

I'm sure you all know that a black hole is the result of an extreme amount of mass-energy pressurizing a center of gravity at the point of pushing it back in Time, to the instant of the Big bang. And if you didn't know, well...now you do.

We've already seen that when the regression in Time attains what is called the black hole's horizon, fundamental volume massive particles are crushed, liberating an unbelievable amount of mass-energy that reverses the Time flow, sending it toward the center of gravity of that black hole. Starting from that moment, the collapsing of the Time metric is unstoppable.

The last phase, of metric space collapse was what produced the black hole's horizon. So that horizon is, in fact, the singularity from which the first volume of our universe emerged at the Big bang event. Which means that this singularity is a "crushed volume"; in other words: a two-dimensional "surface."

This being said, it becomes evident that this horizon of a black hole is an opening in the period before the Big bang, which is called the Planck epoch.

As you can now realize, a black hole is a "Time tunnel" towards the past (and not a "space tunnel" towards... somewhere else), produced by mass energy. And, once again, we get another confirmation that the gravitational effect disturbs the Time flow, bringing all consequences, mainly positive, we've met until now.

Scientists, since the appearance of the black hole notion, thought that they were the results of merging galaxies, uniting their center of gravity and gaining this way, they imagined, sufficient mass energy to produce a black hole. But we saw that to "push" on a center of gravity, "matter" has to make direct contact with the surface of an object, whatever that object is. So merging galaxies don't add more mass energy than what is set in contact with the center of gravity of the newly formed galaxy.

Even today, scientists still think that the number of stars orbiting in a galaxy contributes to the "mass-energy" of that galaxy. I guess they've seen too many Chinese Kung-Fu movies where the hero pushes the air so violently that his enemies, 30 feet away, fall on their back.

Note that we don't object saying that all stars contribute to the total quantity of matter in a galaxy; that's evidence. But it certainly does not augment its mass-energy pressure at the center of gravity. The same process applies to whatever gravitational formation. For example, the effect of Jupiter's gravitation provokes an installation of their barycenter (their system's center of gravity) at a different place than the Sun's center of gravity; but doesn't eliminate the Sun's center of gravity that continues to exist at the center of the Sun. The proof is that this Sun's center of gravity orbits around the system's center of gravity but doesn't change the fact that the Sun possesses 99% of the system's mass-energy. And if you believe that the mass of Jupiter (75% of the remaining 1%) can move their system's barycenter outside of the Sun, no wonder you believe in "dark energy".

Note that depending of which of the Sun/planet system you consider, the Sun doesn't revolve around the same point (barycenter). This observed fact erases the possibility for a barycenter (of a system) to be a "space" topic of our solar system; leaving it to being a "time related effect" just as are Lagrangian points.

The number of stars might contribute to the "mass" of a galaxy, taken in the sense of "quantity of matter" involved; but certainly not to result in the "alteration" of the space-time (as they call it) volume that contains all those stars.

It's more and more imperative to find another word than "mass" referring to a quantity of matter; especially since it became a habit to say that Mass = Energy. A quantity of matter equals energy just as a quantity of ice equals water. We all agree that ice is always "water"; but we mustn't forget that water isn't always "ice." Furthermore, how can we say that mass is "matter" when we don't even have a scientific definition of what "matter" is?

The consequence of that "vague" notion of Mass which always = Energy, convinced scientists, and even Einstein thought the same, that a bulk of matter produces gravity. They were leaving out the space occupied by the matter itself; which is a flawed notion that brought the necessity of "inventing" the dark matter proposition, we will eventually address.

Never the less, recent observations of hundreds of galaxies are starting to put ideas back in place. Some scientists now considered that black holes might form before galaxies and contribute during its stars formations. But they still don't know by which process. So, if ever, one of you meet an astrophysicist, you could suggest the process of Lagrangian points we've accepted to produce planets; it also works inside galaxies.

There are different intensities for black holes. We know some supermassive BH that have 250,000 solar mass. The biggest one found yet has 17 billion solar mass. It stands at the center of the galaxy NG 1277. And there are smaller ones, which have from 3 to 15 solar mass. Those are thought to be the ones resulting from star collapse.

Another wrong opinion that is still present in the mind of a majority is that at the center of a black hole, there is a "bundle" of super-dense matter. We've already seen the impossibility of this since the horizon destroys matter way before the said center is attained. So if matter, however dense it could be, stands at a center of gravity, it's certainly not in a black hole.

The knowledge that even light cannot escape from a black hole is standard in the minds of everybody. And it is a "fact." Even with its great speed, a photon cannot escape once it has crossed the black hole's horizon. But what is not understood by most is that, even if it could escape, it wouldn't try to.

Let me explain why.

Everybody knows that light is diverted from its straight trajectory when it passes through a so-called "space-time deformation," that we are aware being exclusively a "Time alteration." This "fact" means that electromagnetic waves are affected by gravitational effect.

The event is that light, like everything else, has to follow the topology of "space-time." In a "flat" topology, whatever the adopted direction, the trajectory is always in a "straight" line. In an "altered Time" topology the trajectory curves even if the object is always going "straight ahead." The reason is quite simple; it is the direction "straight ahead" that is curved. So there's no way to escape the curved trajectory, whatever speed you have.

In a curved topology towards the left, the only way to redress your trajectory would be to decide to turn to the right; which requires that you leave your “straight ahead” motion. Maybe you would do it, but whatever object, traveling through space, is subjected to follow the “straight ahead” signalisation; so when the signalisation is “curved,” the trajectory must follow the “straight ahead” curve.

Now, our photon that won't try to escape after crossing the black hole's horizon becomes easy to understand, since the topology surrounding it, is controlled by the Time flow, which is now directed by unrestrained energy, exclusively toward the center of gravity, instead of by a gradual topology “effect.” So, to come out of the black hole, a photon would have to decide to back track on its trajectory; which is impossible even with a mirror in front of it. It will bounce on the mirror but readopt the ambient topology instantly, probably sticking to the mirror's surface.

— Excuse me sir, but you said that matter couldn't exist past the horizon. Have you decided to feed us idiocy? If so, I'm leaving the room this instant.

— Sit down, Donald. I'm glad you were following. And you're right; there can't be any mirror passed the horizon of a black hole.

— Any question, everyone?

— What about the “spaguetiing” result produced by the extraordinary tidal effect in a black hole?

— You surely didn't think before asking that question, my young friend. In order to have a tidal effect, you need, at the least, two centers of gravity; and in a black hole there can be but one. So stop listening to people that talk about the “pull” of gravitation; there are no “pulls” involved at all.

If ever you were planning for spaghetti, you better have some before jumping into a black hole. The only thing that will happen to you, while going toward a black hole, is that you will gain speed just as if you jumped from an airplane. And you'll be crushed like any other matter when approaching the horizon; something similar to when you'll hit the ground.



Needless to say that you'll never end up, behind the book shelves of a room, like in the movie "Interstellar"; and, must I specify, that you will never meet your daughter as a dying old woman while you're still young. That whole supposed "scientifically" based movie was nothing else but nonsense. It used science information the same way maths could be used to make you buy a bag of apples containing minus two apples because five were taken out when there was only three inside it in the first place. Don't purchase the bag nor the science in that ill-informed movie.

— Are black hole rotating sir?

— If you can give me a logical reason for a black hole to rotate, I'm willing to listen. But since the space volume of a galaxy doesn't rotate, there's no reason for the space volume for a black hole to rotate. The universe doesn't rotate, and space is the universe. So how could space rotate if the universe doesn't?

— What about wormholes made by bending space to have two black holes communicate and give us access to far away intergalactic places? I've seen scientists present that possibility on TV.

— Are you serious? Really? Tell me; if you cannot get out of the black hole you enter; how will you get out of the other black hole you say you'll exit? Be logical for a minute! Calling the exit side a "white hole" won't help you, since none were ever observed and they would be a lot easier to observe than "black holes". As for scientists that say that on TV, it's proof to you that *"considering yourself as an expert, is the greatest obstruction to real knowledge."* So never forget to use your brain.

— But you seem to think that you know quite a bit yourself, if I may say so, sir.

— Maybe I know a bit, but I don't think at all of myself as being an expert. Haven't you observe that I always include everybody here, on my addressing problems? We discovered things together; I'm not teaching anything here. Don't ever think that.

— I was teasing you, sir.

— Now that's better, but let me know before; otherwise, I might get dispirited coming here every day.

So, as you can see, there are not many intelligent questions to be considered regarding black holes, when you know what you're talking about. The only additional information I want to give you is that a black hole, on this side of its horizon, doesn't have any energy; it cannot "attract" you to it. The only issue involved is your velocity. Before its event horizon a black hole has no "power" whatsoever. All it disposes of is a topology gradually intensifying its warp toward its horizon. It's like any other depressed hole; if you don't get too close to it, you cannot "slide" in it.

Furthermore don't forget; it's not a "space hole"; it's a "Time hole." For example, the black hole of a galaxy is at the same level as the axis of all stars of that galaxy. The "hole" is at the "Time" dimension not at the "space" dimension.

Therefore we'll leave it at that, and meet again tomorrow. Have a good day everyone.



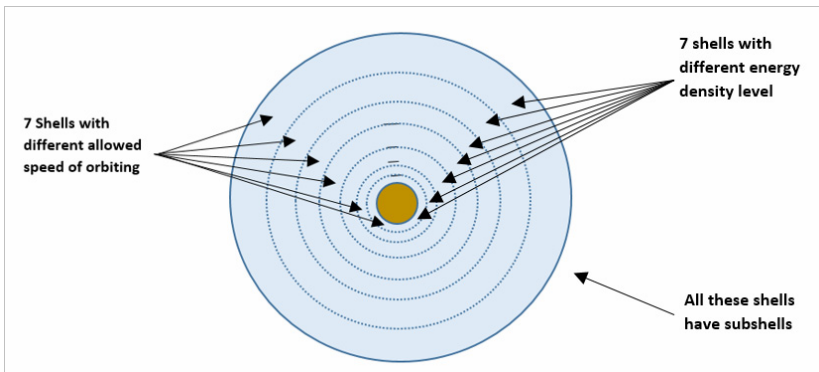
## Chapter 22

# Time metrics

**Y**ou have to concede that geometry has been very fruitful for my story of the birth and life of the universe; so you'll surely permit me to continue using it.

This time we're going to try to understand the fact that "orbit corridors" allow a certain definite exclusive speed to the objects in that corridor. Excluding the other speeds, either by propelling the object in outer space or sending it to the center of gravity shared by all the shells.

First drawing:



Just by looking at this first drawing we are shown that there's a relation between the different densities of shells and their "inner" allowed speed. Which makes me think instantly of the official explanation to the mass given by the Higgs field.

*"As particles pass through the field they are "given" mass and, similar to an object passing through treacle (or molasses), will become slower, and cannot travel at the speed of light because they have mass."*

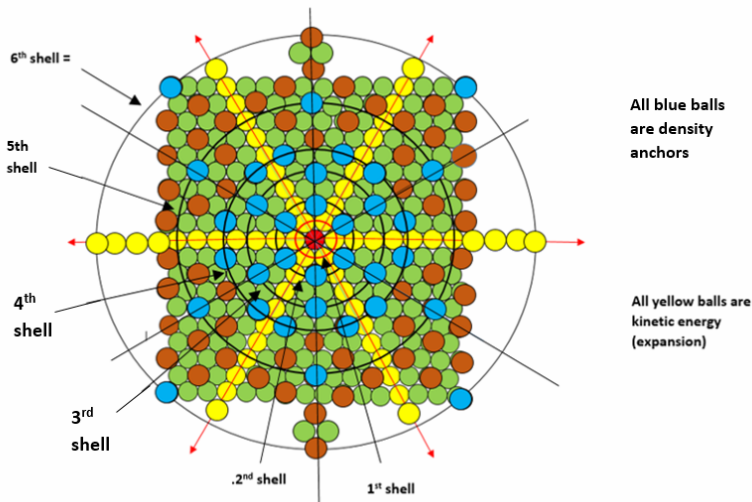
So whatever the maths, the notions, etc. behind the Higgs field "effect," it gives mass to particles because the **density** of the field makes the particle travel slower.

From this accepted notion of scientists, we can say that it is the density of each shell that decides of the allowed speed within itself; would it be in an atom, a star system or a galaxy. But, as usual, I'm not ready to manifest "faith" in any way; so we will verify by comparing with all we have already seen and understood.

And since "motion energy" is involved in this structure of Time and space, we will have a look at the installation of that structure, right at its beginning; meaning, at the Time flow while space is created.

The next drawing shows what we've found:

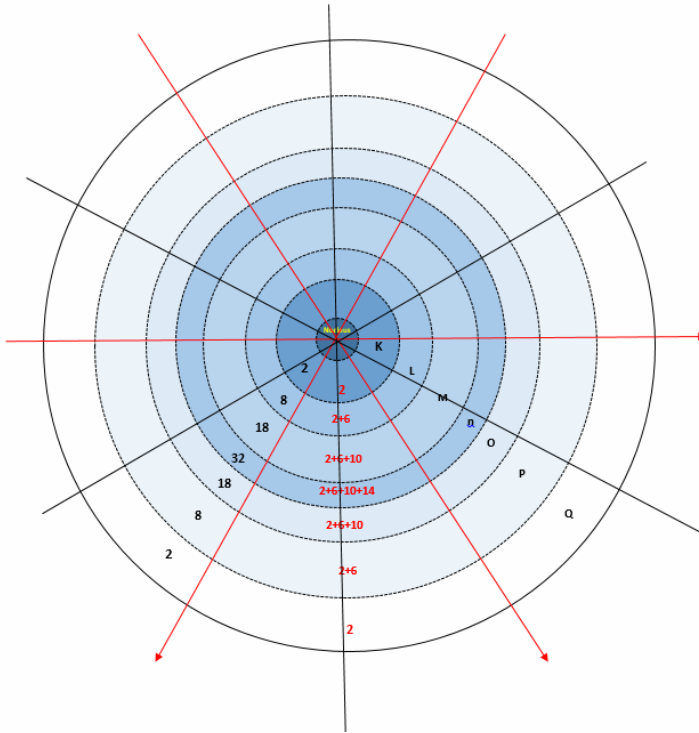
Second drawing:



Now we must be conscious that this last draft represents the "shell" structure or to be more precise, the "Time flow" structure at the center of gravity of a planet, and not around the globe.

The structure following this one would be the structure of electronic shells; for example the Radium,

Third drawing:



What is the “relation between those drawings? Frankly, as for myself, I can’t see any.

— I can see one, sir.

— Peter? What is it?

— The fourth shell of the second drawing has the greatest number of blue anchors, while it has the most number of electrons in the third drawing. No other shell has that much of anchors or electrons.

— By Jove, you're right. Found anything else?

— In the 5<sup>th</sup> shell of the second drawing, I count 18 brown gravitational balls, and we have 18 electrons in the third picture.

— Right again. But let us recall the way scientists define the number of electrons possible in each shell. What they do is multiply the shell number by itself and then, multiply the amount obtained by 2.

For example, the shell no 3 is  $3 \times 3 = 9 \times 2 = 18$ ; which gives 18 electrons in the 3<sup>rd</sup> shell, and that is exactly what the 3<sup>rd</sup> shell contains. The 4<sup>th</sup> shell would be  $4 \times 4 = 16 \times 2 = 32$ , which is still exact regarding the number of electrons in the 4<sup>th</sup> shell.

— But then, sir, this would give the 5<sup>th</sup> shell:  $5 \times 5 = 25 \times 2 = 50$ . And we have only 18 electrons in the 5<sup>th</sup> shell. Then the 6<sup>th</sup> shell should have 72 electrons and the 7<sup>th</sup> shell, 98 electrons. Probably that the universe made a mistake; because scientists, unless they started doing numerology, don't make many errors as I've heard.

— At least that's what people believe. But I'd rather say that it's the universe that doesn't make any errors; and when it does, the error is corrected by itself, in classifying the error as impossible and making it disappear. But the point you raise confirms that it's the density in the shell that is involved with the number of electrons.

— Excuse me sir, but that is not what we said earlier. We stated that it was the number of primary space metrics that gave the gradually decreasing density of space. So we cannot have an increased density for the four first shells before reducing density starts. There's something wrong somewhere.

— Excellent point. So what could explain that increase of density for the four first shells?

— Wasn't resisting energy growing inside a proton, when a quark was pulled away from its center of gravity? It seems similar to this increase of energy density we are talking about; wouldn't you think?

— It does; but how could it be related?

— Well, sir, we don't have too many choices; it's either space or Time-related. There's nothing else.

— I agree; so is it Time related?

— We've just said that the density was related to the space metric, sir.

— Ok; so it's related to the space metric then; but how?

— May I ask, sir? As there been an increase of energy in the universe at some point, that would justify an increase of density in the structure we are considering?

— By Jove, you’ve found it! There was an increase of energy density in the universe when the gluon appeared with its “light-speed square” inner energy. So the evolution structure acquired a new characteristic that embedded itself in the evolving structural pattern. And this is what we see in the structure of the “Time altered” space volume.

— I’m sorry sir, but I don’t buy it. It’s not a new characteristic added at all. It had always been there. Furthermore, the energy of gluons stayed “confined”; so you cannot use it to the overall free energy of the universe.

— What do you mean, Helen?

— During Planck’s epoch, there was an increase of energy until Planck Time, when energy’s density started to decrease because of expansion. You don’t need to “imagine” new characteristics. There’s no place for “inventions” here, sir.

— You’re right, my dear; I was going against my own rules. So, in your opinion, the increase of energy density until the 4<sup>th</sup> level, shell or orbit corridor, would be a pattern acquired during Planck’s epoch. What can you design to support this idea?

— Simple “facts,” sir.

1) The increase of energy has to be a “fact” in Planck’s epoch; in order to “explode” at the Big bang after starting at a zero value.

2) The increase of energy’s density is a “fact” in the four first shells of a nucleus. And so are the rocky inner planets denser than the outer gas planets.

3) The decrease of kinetic energy is a “fact” for planets around our Sun; they possess reduced speed successively.

4) I’ve checked the orbital periods of Kepler 11 planets, and they increase just as our solar system planets; so I suppose that their individual kinetic speed has the same relations as have our planets. Which makes it another “fact,” sir.

5) As for galaxies, we know that a vast spreading of stars around its center orbit at approximately the same speed; which puts them in the same orbiting corridor, or the last shell, that is defined around a nucleus which has far less “confining” energy (less density). This



structure would explain the spread of that last corridor before the Time alteration of a space volume vanishes. This being also an observed “fact,” that’s quite enough supporting “facts” for me, sir.

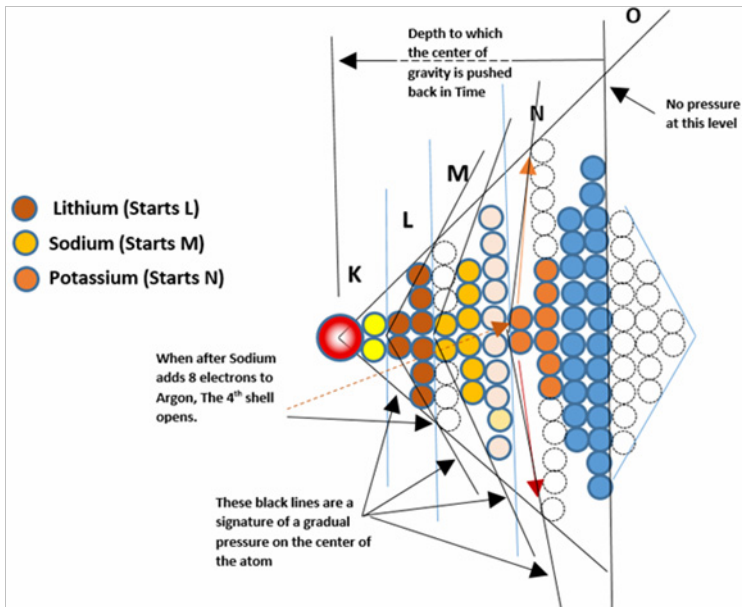
All these facts make me think that the problem is related to the “Time flow” once again. On your second drawing, you have a 4<sup>th</sup> shell (corridor) narrower than the 3<sup>rd</sup> and the 5<sup>th</sup> shell, and it’s related to gravitation; which means “Time flow.”

— Anybody can oppose Helen’s opinion?

— ...

— Ok; then we have another confirmation of Time flow versus gravitation. So, part of what Helen mentioned would mean that between the 4<sup>th</sup> and 5<sup>th</sup> shell (corridor) stands the corresponding pattern of Time to the Big bang. A restart of time flow at the Big bang would justify the increase of density energy up to the 4<sup>th</sup> energy level, followed by a rapid decrease in density. But, may I remark that it is not what space expansion shows. It seems that decreasing energy of the universe was far less rapid than what we see in an atom structure.

— Maybe so, sir; but it’s exactly what we’ve seen in the filling shells evolution of atoms, if I may present your own drawing of that pattern:



Which doesn't show the entire decreasing density of the universe, but the phases involved in the density inside a "Time altered" volume of space. We know that they are independent areas; so we mustn't consider them as "one single space volume." There are several "Time altered" space volumes, embedded inside the overall "flat" universe's space volume.

You must remember, sir, that the Time altered space volume metric is stable; which means that its metrics are the same everywhere. Only the "Time flow" allocates the density levels in the space metrics. Which is what I've just brought up.

So, as we said earlier, the energy is related to space metric; but the assignment of energy density is made by the "Time flow" as designed on your second drawing. That is also why, even if space metrics equalizes their energy, "Time flow" defines different intensities through the structure.

— Perfect Helen; I'll accept your proposition. But it gives me another idea I'd like to check with you all. What is the relation between orbital speeds of our planets?

Let's check using round figures:

Planets	speed		Differences	%
1-Mercury	47,87 km/sec	172,332 km/hr	46,260 km/hr	
2-Venus	35,02 km/sec	126,072 km/hr	18,072 km/hr	
3-Earth	30 km/sec	108,000 km/hr	6,912 km/hr	
4-Mars	24,08 km/sec	101,088 km/hr	54,036 km/hr	
----- Asteroids -----				
5-Jupiter	13,07 km/sec	47,052 km/hr	47,017 km/hr	
6-Saturn	9,69 km/sec	34,884 km/hr	10,368 km/hr	
7-Uranus	6,81 km/sec	24,516 km/hr	4.968 km/hr	
8-Neptune	5,43 km/sec	19,548 km/hr		

I'm sad to say that it doesn't tell me much. What about you people?

— You mustn't feel good today sir because I instantly see a relation between the information we have and this result.

— Go ahead Helen; keep up the good flow.

— First: The difference between 1 and 2 is about the same as the difference between 5 and 6. Which corroborates what I said previously about the Big bang pattern.

Second: The greatest difference of speed is between 4 and 5. Which confirms the maximum energy density in the 4<sup>th</sup> shell.

Third: The energy density in 6-7-8 diminishes faster than it does in 3-2-1. Which is exactly what we saw in the electronic shell structure.

Everything confirms the “Time arrow” involvement like we’ve seen everywhere so far, sir. But there’s another graphic we could make to, maybe, get more information.

— Ok, Helen; I’m letting you proceed; you’re too much in a “spell” for me to stop you.

— What I would propose is to give a unit value to each electron of each differences of corridors. I’ve prepared a graphic that we can study. I’ve used as one kinetic energy unit value of 19, 5 km/hr, which is the speed of the slowest planet (Neptune), to compare units of other planets; but I’m far from sure it will lead anywhere.

— It doesn’t matter Helen; you work as the universe does; you try everything that you can lay your hands on. I appreciate it very much. Let’s have it; if it doesn’t tell anything, we’ll do like the universe and let it go.

— Well, then, here it is, sir:

		<u>Increasing differences between corridors</u>	<u>Number of units per electrons</u>
Mercury has 8, 838 units	➤ 1)	2,373 units 2 <sup>nd</sup> most energetic (2a electrons).....	1,186, 5 each (1 <sup>st</sup> )
Venus has .....6, 465 units	➤ 2)	927 units 4 <sup>th</sup> most energetic (2a+6a electrons).....	115, 87 each (3 <sup>rd</sup> )
Earth has .....5, 538 units	➤ 3)	354 units 7 <sup>th</sup> most energetic (2a+6a+10a electrons).....	19, 7 each (7 <sup>th</sup> )
Mars has .....5, 184 units	➤ 4)	2,771 units 1 <sup>st</sup> most energetic (2a+6a+10a+14a electrons)	86, 6 each (4 <sup>th</sup> )
<b>Asteroids</b>	➤ 5)	624 units 5 <sup>th</sup> most energetic (2b+6b+10b electrons).....	34, 6 each (6 <sup>th</sup> )
Jupiter has .....2, 413 units	➤ 6)	532 units 6 <sup>th</sup> most energetic (2b+6b electrons).....	66, 5 each (5 <sup>th</sup> )
Saturn has .....1, 789 units	➤ 7)	1,257 units 3 <sup>rd</sup> most energetic (2b electrons).....	628, 5 each (2 <sup>nd</sup> )
Uranus has .....1, 257 units			
Neptune has .....1 Unit			

— Interesting! What does it tell you, Helen?

— I’ve just finished the drawing and didn’t have much time to study it yet, sir. I’m sorry.

— Don't be; we will all take a copy and have a look at it. Maybe some of us will have found something by tomorrow. We will see then.

Have a good evening my friends.



## Chapter 23

# Solution

— **G**ood morning everybody! I can see a few of you didn't have too much sleep. Was it the problem Helen brought up that kept you awake?

— It sure did with me, sir.

— Since you were the one responsible Helen, nobody will shed tears for your "misfortune."

— It wasn't a misfortune at all, sir; I found the solution.

— Have you?

— Yes, sir.

— Give it to us then; because I couldn't find any, myself. As anybody else found a solution?

— ...

— Well, Helen, the stage is yours.

— Thank you, sir.

It took me time to find it; that last drawing I made didn't have anything to say. So I listed all conditions the solution has to meet:

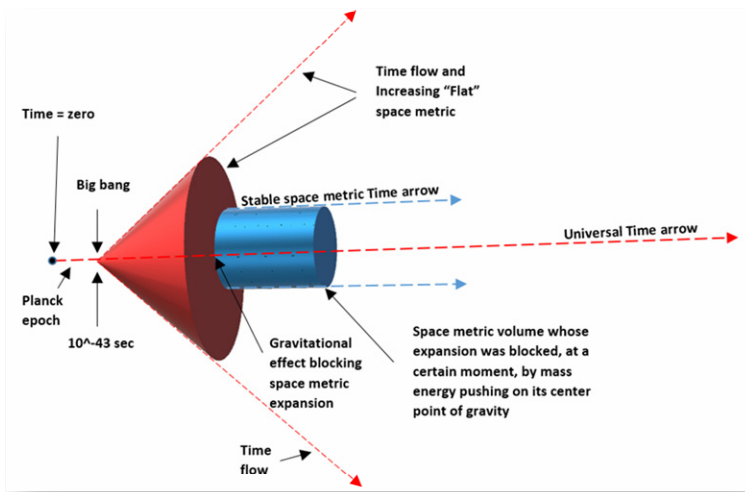
- 1) Space corridors have individual density characteristics
- 2) Corridors get larger as being farther from the center of gravity.

-3) the energy is related to space metric, but it's the "Time flow" gives the assignment of energy density."

-4) Maximum density is at the 4<sup>th</sup> energy level.

-5) The energy density in shells 6-7-8 diminishes faster than it does in 3-2-1.

So I made a first drawing representing the "facts" of expanding space and Time flow at the beginning of the universe:

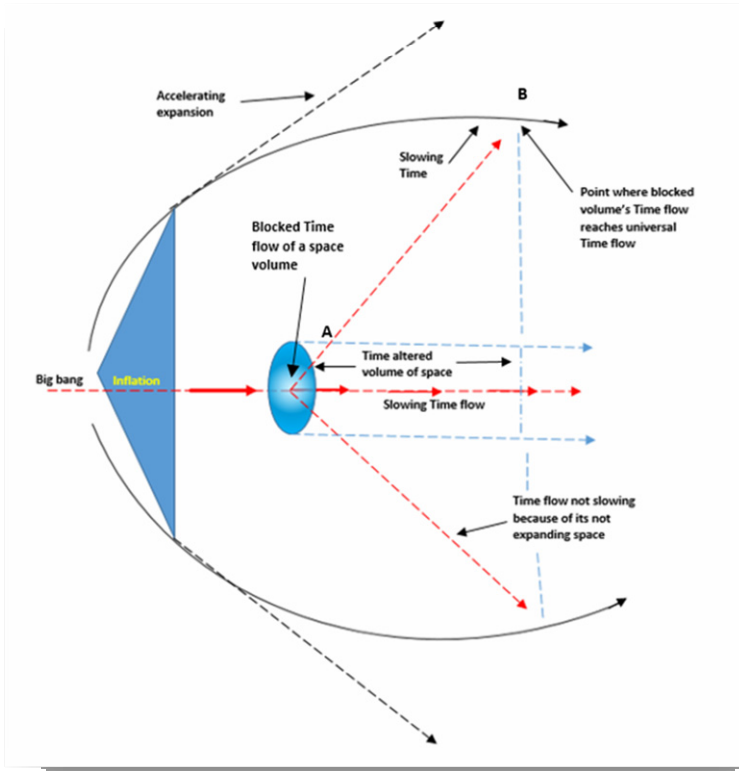


While looking at this graphic, I suddenly thought of the accelerating of "flat" space metric and realized that the space metric of our blocked volume wasn't expanding. But even without expansion of space, it had a Time flow anyway.

As we've already seen, the expansion of this volume of space is stopped at a certain moment in its history; in other words, it is relieved from the Universal Time flow and start a new Time flow of its own.

But more than that, acceleration of the expansion of "flat" space metrics has to decelerate the flowing of Time. Everybody knows that acceleration in space makes Time slow its flow; to the point of when going at light-speed, Time flow freezes.

So I made another drawing where I show the starting point of the blocked expansion space volume:



Now the new Time flow started by that blocked space volume adopts the speed flow of Time when it was stopped.

And since Universal Time flow keeps decelerating while space expansion accelerates, the new Time flow of the blocked space volume continues at its steady speed. But keeping the same speed of Time flow doesn't answer the decreasing density of energy from one corridor to the other. And I still had my problem.

Suddenly, I thought of when we were doubling space metrics containing all the universe's energy, which was equalizing itself through all space created because a space metric wasn't a closed box that confined energy. And it came to me that the energy density inside the blocked volume of space wasn't "confined" in that amount of space and it had to equalize with the universe density of energy.



So now, my problem was to understand why the energy density wasn't equalized all through the volume of space that was blocked at a particular expansion stage. Why was there different energy densities between different "corridors" or "shells"?

I didn't see the light before realizing that when space was young, the density was greater. The older it got, the less the energy was dense. It became evident that the energy density was directly related to the universal Time flow and not to the new space volume Time flow.

If you look at the last drawing, you'll see that the new metric of Time flow leaves the volume of the blocked space at point A rapidly, and rejoins the Universal Time flow at point B. To understand the event you have to identify each portion of that new Time flow:

- 1) From the center of gravity to point A, we have the time inside the matter object whose center of gravity was blocked.
- 2) From point A to point B we have the space traveled by the new Time flow to rejoin the Universal Time flow.
- 3) This last volume of space is the one affected by Time in its energy density. We have to see the density alterations as the effect of a race between decreasing speed of Universal Time flow and stable speed of matter Time flow.
- 4) Steady speed Time flow covers more and more duplicate energy density space as Universal Time flow slows down. Because it is slowing, also does the decrease of energy density. In other words, there are larger portions of same energy density that can cover the faster stable speed of Time flow.

The result is that the steady speed of the new Time flow travels through more metrics of space with identical energy density since the Universal Time flow decreases speed while the metrics of HIS space expands diluting energy density.

The fact is that even if the blocked volume of space possess its Time flow (its age), the volume itself stays related to the Universal Time flow (age of the universe) with the exclusion of the expansion of its space metric.

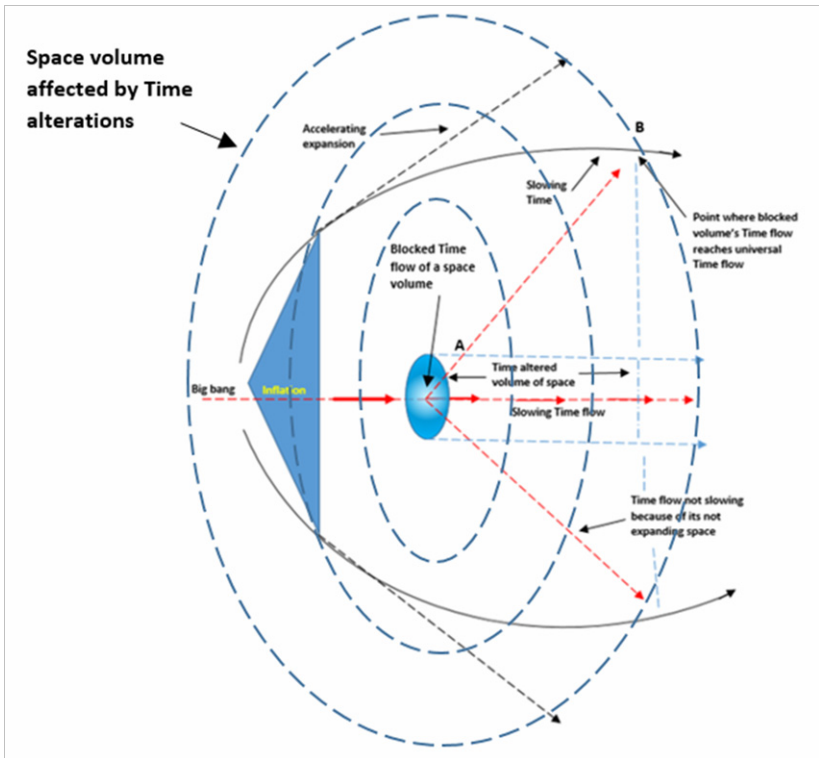
Furthermore, I've noted that the kinetic energy, inside electronic shells, is spread through the corridor because of the "blurred" nature of the electron, while the same kinetic energy is transferred

to the defined nature of matter orbiting those corridors at the planets level. Which is a non-disputable sign of the evolution of energy to gain stability.

I hope I am clear enough because the idea is not too easy to grasp.

— I understand you perfectly Helen; and, frankly, this is the only logical and fully complete explanation of what we observe in our so called “space deformation.”

We could even draw those space corridor on your last drawing to make it more explicit:



Yes, ladies and gentlemen, Helen is very worthy of your applause, I thank you warmly for that spontaneous appreciation of her work.

Thank you very much, my dear Helen. I think that we, and you especially, deserve a break. Let's be back in an hour.

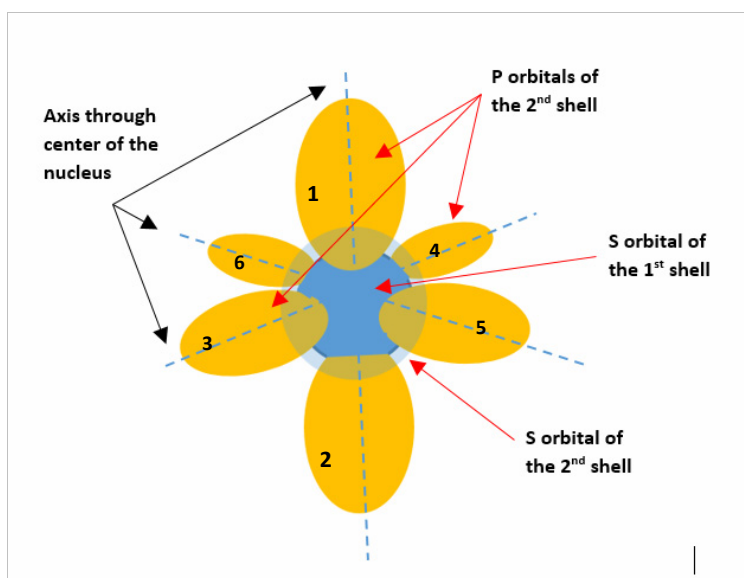
— Excuse me, sir; before we go could I have another minute of your time?

— Sure! What is it?

— Well, I was checking subshells and I hit something that made me dizzy a bit. It seemed to me that subshells distribution obeys to our “time clock” configuration of the “Time flow”. I would like to have your opinion.

To get my point we have to know that:

- 1) Each electron shell consists of one or more subshells, and each subshell consists of one or more orbitals.
- 2) In each shell, we have 4 subshells called: s, p, d, and f, and the following is an example of what their distribution looks like:



These subshells are “where” electrons are more liable to be found and each orbital have a different shape.

s orbitals are spherical.

p orbitals have dumbbell shapes like 1 and 2, 3 and 4, 5 and 6, united on axis aligned perpendicular to each other's, passing through the center of gravity of the nucleus.

d and f shapes are also different.

What I can say is that the first shell, being spherical, obeys to the “Time flow” observed at the first duplication level of the space metric, which produces a spherical time flow manifestation.

As for the second orbitals, called p orbitals, they undoubtedly obey to the second duplication level of the “space metrics” where the first appearance of “space volumes” independent from the six main Time flows manifest itself.

My question is: are d and f orbitals obeying the third and fourth space metrics duplications, respectively, to express their shape?

— Sorry, but I really can’t say. What I can say though is that I’m very glad that your mind was open to the possibility. This has to be the way we have to develop our interpretations of experimental results. We cannot reject the info supplied by geometry, and concentrate exclusively on the maths.

To explain more precisely what you saw, I can had that:

1-All electrons in the same subshell will have exactly the same energy level.

2- Each of the orbitals can only contain a maximum of two electrons.

3- The periodic table has 95 different naturally produced elements; the rest are synthetic radioisotopes. Which shows how complex becomes orbital shapes.

4- Those orbital shapes are gradually found inside each gradual spherical electronic shells; they are sort of the composition of the electronic shells structure and they also refer to specific energy level of the two electrons that they accept.

5- Which means that whatever the number of electrons inside a shell level, you can have only two electrons that possess identical energy. And they both situate themselves geometrically, each side, at equal distance from the nucleus. This fact is mathematically presented as two electrons having respectively opposite “half spins”. These two spin orientations are sometimes referred to as spin-up and spin down, respectively. I must note that a straightforward explanation of this has eluded even Nobel Prize winning physicists on occasion. Once again the geometry notion proves to be a clearer explanation for calculation or observations results.

6- Our notion of energetic cloud surrounding the nucleus applied to the geometry of the six main time flow, as presented by our colleague just now, seems to me a clearer explanation for the shell's structure. Furthermore, it doesn't damage in any way the negative "full spin" of an electron by dividing it in negative and positive "half spins" that aren't logical even mathematically. The orbital shape is simply adopted by the electronic cloud around the nucleus in relation to the duplication level of the space metric.

7- Then again you have to deal with the nodes notion. A node is a point at which the probability of an electron occurring is zero. So as you can see, we rediscover the first pattern ever inscribed in the history of our universe: the zero possibility of "nothingness". Hydrogen orbital is a single "s" orbital and has no nodes at all; so all other "s" orbitals have no nodes. There are two kinds of node - **radial nodes**, and **angular nodes**. A radial node is essentially the set of points that lie at some specified radial distance from the nucleus. An angular node is typically represented as a plane of symmetry bisecting the orbital. We will not go further on this mathematical path except to say that the number of nodes increases with the principal quantum number. Which also describes the number of probabilities being discarded as impossibilities, augmenting gradually because of the basic "viability" condition of evolution.

8- The 2 shell "s" orbital has one radial node, the 3rd "s" orbital has two radial nodes, and so on (note that an electron shell may only contain one single "s" orbital).

9- "p" orbitals: The 1st electron shell can contain only two electrons, both of which will occupy a single "s" subshell orbital. The 2nd electron shell, on the other hand, can contain up to eight electrons. The first two will occupy the 2 "s" orbital. Any additional electrons will occupy one of three "p" orbitals. As our colleague shown us, the three dumbbell-shaped "p" orbitals lie at right angles to one another along imaginary x, y and z axes.

10- Now let's see what officials say regarding the opening of shells before filling the actual shell:

*"For the first eighteen elements in the periodic table up to and including argon (i.e. the first three periods of the table), all of the electrons will be found in either s orbitals or p orbitals. In fact, that*

*continues to be the case for the first two elements of period four - potassium and calcium. In these two elements, we see electrons appearing in the s orbital of electron shell 4n, despite the fact that electron shell 3n is not yet full.*

*The reason for this seeming anomaly is that the energy level of the s orbital in electron shell 4n (designated as the 4s orbital) is actually slightly lower than the energy level of the d orbitals in electron shell 3n, and we have already seen that electrons will (usually) occupy the orbitals with the lowest energy levels first (**just to make things more complicated, the energy level of the 4s orbital increases when the 3d orbitals start to fill up, but we're not going to get into that here).***"

As you can see our geometrical explanation of opening shells seen earlier, is a lot simpler than what is mathematically assumed; and it gets more and more complicated as maths go along.

So can we take that break, now?

— Thank you, sir.



## Chapter 24

# Scientific vocabulary precisions

**F**rom what we've learned up to now, because we gave the exact significant importance to the Time flow, I propose to provide more precision to the definition of some words used in science:

**Atoms** are what strictly composes matter; they are structured with a nucleus surrounded by electrons. They possess their own Time flow.

**Electromagnetic waves** possess a particle characteristic that is observed when the supposed "traveling" wave hits something. Before the collision, neither the wave nor the particle is observable.

Consequently, since the wave characteristic is strictly a "model" explaining results observed, we can consider these waves as being part of the "probability" section of evolution, where the "blurred possibilities" are too numerous to be defined exactly before "hitting" one another or something else more defined. So the "wave function" isn't a "fact" but the "probable image" of an event.

Meaning that the wave characteristic is something that either can become "possible" or "impossible." The ones we can observe as a particle "results" are the ones that are going to, eventually, be "possible."

So finally, the wave model characteristic isn't relevant in other way than as a "stage" in the Time flow evolution.



**Electrons** have a particle aspect where it is observed, and a “blurred” possibility of existence when not situated. It stands at the border line between the “probability” stage and the “possibility” stage on the Time flow evolution.

**Matter** is a property of all physical objects. It has no proper single scientific definition. By physical form, it can be categorized as gas, liquid, solid, and plasma.

Being a property of all physical object I’m convinced that it should have a proper definition. I propose that matter is a gas, a liquid, a solid or a plasma; and nothing else whatever its volume. Consequently: space is not “matter” even though matter occupies space. Furthermore, a universal plasma doesn’t exist since the universe isn’t “matter,” but “space.”

**Mass-energy** is “confined” kinetic energy oriented toward a center of gravity, which produces the gravitational “effect.” Its resistance to motion called its “rest state” is related to its “weight.”

When in motion, it doesn’t need “more” kinetic energy to accelerate an object than it needs when “at rest.” But the “pressure” (force for some of us) to be applied, has itself to dispose of sufficient kinetic energy to “reach” the moving object in order to be applied. Only whatever energy it has in surplus, is transferred to the accelerated object; which “steals” this surplus to the faster colliding object.

In “flat” space, the accelerated object continues at the speed of the previous object while this last object continues at the other object’s former velocity. Energy is transferred and never lost. This transfer is also what happens when an object accelerates by “pushing” something behind itself for propulsion.

This explains the fact that the third stage of a rocket doesn’t fall back on Earth because it is pushed toward it; but because the speed it had when it served as a pushing “platform” to the rocket wasn’t fast enough to stay in orbit. Third stages of rockets use for Moon (Apollo 10 & 11), or interplanetary launches were fast enough and stayed in orbit around the Sun or (Apollo 12) around the Earth. Apollo 13-14-15 and 16 were deliberately crashed on the Moon surface after each mission.

**Particles and waves.** All particles have a wave/particle characteristic; but the more the object has “mass-energy” that defines its particle state, the shorter is its wavelength.

In our description of the matter level, the wave characteristic cannot be observed. Consequently, it shouldn't be considered existing at that level of evolution.

**Protons and neutrons** are installed more on the “possibility” side of the border because they have a lot more mass-energy than electrons; meaning that their “particle state” is defined with more precision. They also have a center of gravity.

Which signifies that the more a “probability” has mass-energy, the more it becomes a “possibility.”

This last conclusion permits us to add precisions to our story of the universe:

The period preceding  $10^{-36}$  sec after time started to flow, is strictly a period of “probabilities” without any “possibilities” involvement. The Time flow period from  $10^{-43}$  sec, is a “radiating neutrinos” volume of “flat” space. It was strictly an expanding characterised universe and lasted from  $10^{-43}$  sec until  $10^{-36}$  sec.

At  $10^{-36}$  sec, the gluon particle introduced the seed to start the “possibility” stage, on the Time flow of evolution. Immediately, viable “possibilities” where “sorted out” from blurred “probabilities.”

At  $10^{-32}$  sec, all massive “possibilities” were better defined, and the only massless “probabilities” left, were the ones involved in the new electromagnetism characteristic of space, plus the former surface neutrino particle responsible for the expansion of “flat” space. All other particles were “possibilities”.

The start of the exclusive “possibility” stage on the Time flow, was definite when former “possibilities” joined together to give enough “mass energy” to particles, making completely disappear their blurred “probabilities” characteristic. This was the advent of protons and neutrons. Whatever wave characteristic we say is observed at this level, belongs, in fact, to the precedent level.

Electrons originating from electromagnetism (collision between electromagnetic waves) remained with their “probabilities” characteristic intact, gained as a “blurred” particle characteristic because,

being a volume of spinning “confined” energy, it gave them a bit of “weight” without a center of gravity.

We have to note that the proton is the particle that gained the first “realized” characteristic; which opened the “realistic” stage on the Time flow called the atoms stage.

All atoms are trying today to produce the results that can define the future “reality” of the universe’s itself which was, at the start, a “potentiality to be.” This future reality should determine the present final stage of the Time flow, opening the door to some future “potentiality” of another forthcoming “reality” we cannot foresee.

Coming back to the electromagnetic particle called a photon, we have seen that it manifests itself only when the “wave model” collides with something; either another wave or a more defined particle.

Our “wave model” is merely a deduction from the photon results we observe, but the “fact” is that we’ve never seen a “traveling” photon. Furthermore, we never see an electromagnetic wave travel either. The only logical reason for this “fact” is rather simple:

We know that light-speed freezes Time and cancels distances. So electromagnetic waves and their photon particle characteristic cannot present either time lapse or distances. Which means that in reality, they do not “travel.” It also means that only the photon is a “reality” while its waves belong to the “possibility” level. Nevertheless they both are in a “continual present state” and present all wavelengths through all metric distances they imply.

**A Photon** is a quantum of energy. It is not a particle because it doesn’t have any mass-energy; it’s simply an electromagnetism “state” of energy. It doesn’t travel. It appears when a particle has to emit, into (or absorb from) its environment, energy to stabilize itself to its electromagnetic environment.

**Electromagnetism** is a characteristic of space and is strictly attached to the Time flow whether this flow is “altered” or not. Electromagnetism being everywhere, photons are perceivable everywhere the electromagnetic wave “hits” something; which, really, means where it is “activated”. The particles exist where those collisions occur; which explains our visualization of events.

This means that Time flow, without being energetic, is related to energy density by flowing through space metric's electromagnetic energy. Consequently, the emissions of quanta of electromagnetic energy, related to our perception, is the "rebound" of that Time flow energetic relation; and not "emission" of inner "mass-energy" of particles.

These last "emissions" of inner "mass-energy" are strictly occurring when balancing with the energy density of the environment is needed. It also means that the "kinetic" characteristic of electromagnetic energy belongs to the Time flow's duplicating space metrics; and not to electromagnetism itself which doesn't "travel."

**Black body radiation** is considered as heat radiation. In fact, it is simply electromagnetic radiation quantum that "rebounds" at different density flow. The greater the energy density, the more "pressure" it is subjected to, so the more heat production the "rebound" shows.

**Weight** is a difference between two speeds (two proper velocities). It is, not at all, related to gravitation. It is what is considered as the "rest mass" of an object. For example, a person's weight is the difference between his "velocity," insisting toward the Earth's center of gravity, and the blocked velocity of the matter between them. The sum of all matter's blocked velocities is the "pressure" made on the center point of gravity that stops the Time flow of expansion through a particular volume of space. That is why, in "free fall" (velocity not being blocked), an object is weightless.

**The Momentum** of an object is the work produced by added kinetic energy to an object. Every object has kinetic energy; whether we consider it "at rest" or not.

Adding kinetic energy to an object, inside an "altered" Time flow, does not increase its "proper" kinetic energy; it just sends it elsewhere with its "inner" kinetic energy staying oriented toward the center of gravity it relates to. Whatever resistance this "exterior" kinetic energy encounters will affect it. This "outer" kinetic energy is erroneously considered as "relativistic mass" by science; which shows the need for mass-energy to be understood.

Meanwhile if added in “flat” space, since the object relates strictly to its own center of gravity, adding kinetic energy to it, augments its “proper” (inner) kinetic energy. So its motion is augmented at a new acquainted velocity and doesn’t change afterward unless some more kinetic energy is added.

**Fission**, contrarily to Fusion is not a very often observed phenomenon. But both transform mass-energy into kinetic energy. Which is not the case in reality or, at least, needs more explanation. The fact is that the kinetic energy issued from fission or fusion is the sum of “pressure” released by the phenomenon; pressure released in the form of kinetic energy.

Fission releases a significant amount of kinetic energy in forms of neutrons (radio activity) and photons (electromagnetic quanta of energy) and can attain the manifested “explosion” of kinetic energy release. While fusion produces a less substantial “radiation.” Both are a manifestation of kinetic energy release, relieving the gravity pressure (binding energy) on the particles of the object. The particles themselves don’t lose “inner” energy.

Fission separates protons inside a nucleus (nuclear fission); so the result is a “transmutation” to a lighter element. Fusion augments protons, thus producing a heavier element.

Natural fission occurs when you introduce a neutron to more than the capacity of an element for accepting an additional neutron. The nucleus then splits into two other elements, of which the binding energies (the pressure on components) are greatly less than the original element. This difference in the binding energy is the kinetic energy released. The proof is that the fission probability depends on the kinetic energy of the incoming neutron.

I guess that these precisions would help to understand events even better.

## Chapter 25

# Time anchor

**T**ime is the most “mind blurring” concept to use. It is the easiest notion to get mixed up in our minds. What exactly is the meaning of a Time length, a Time speed or a Time flow and to what are they related?

From a certain point of view, Time doesn’t exist “per se.” Time is “relative.” Our usual correct time is solely based on an agreed standard. Currently, Universal Time Coordinated (UTC) has been accepted as being the world time scale. It relies on the planet’s rotation.

Note: UTC has to adjust time because Earth’s rotation slows down continuously. Which is different from GPS time that is not corrected to match the rotation of the Earth. GPS time was set to match UTC in 1980 but has since diverged. The lack of corrections means that GPS time remains at a constant offset with International Atomic Time. Periodic corrections of GPS are performed to the clocks onboard of satellites to keep them synchronized with ground clocks. Needless to say that the regular slowing rotation of the planet produces changes in the climate.

Once again, this qualification of “Universal” for this UTC Time is a joke. It’s certainly not universal if based on the Earth’s rotation. Atomic Time is a bit more “general”; but isn’t still acceptable as “Universal.”

Nevertheless, more and more precision is needed for the human environment. But its accuracy is related to the “agreed standard” and not to Time flow itself; which, in everybody’s mind, becomes secondary.

Evidently, real Universal Time, as a flow, is entirely something else. Sadly, general relativity and special relativity made scientists think that absolute Time doesn’t exist. Which is almost right in an “altered Time volume.” But we’ve found that, at least, the flow of Time does exist. And if Time “flows,” it’s hard to deny its existence.

On the other hand, it isn’t related at all to the Earth’s rotation, the speed of satellites or the pulsation of radioactivity. It depends strictly on the duplication of primarily space metrics with its “side effect.” It also means that Time flow is different inside a volume gravitationally affected, then it is in a “flat” space topology.

The basic logical facts on Time are:

- 1) Time started to flow at the beginning of everything, which was when it stopped having a zero value.
- 2) The Universal Time flow possess one sole “forward” direction which we call the Time arrow.
- 3) The farther away you’re from a center of gravity, the faster Time flows (in fact it doesn’t accelerate; but since the Universal Time flow slows down, it comes to the same result). The questions are: Where does that “pattern” come from? What does this mean exactly? Does it means that Time is slowed down or Time is speeded up? Does it means that Time laps are shorter or longer?
- 4) The faster your forward motion is, the slower Time flows and the shorter the distances are. Which means that there are three “subjects” involved: 1) Time, 2) space, 3) duplication of space metrics. This last item is the leading one affecting the other two.
- 5) At the speed of light, time freezes and distances are null.

Number 1) means that Time started to flow at the beginning of Planck’s epoch.

Number 2) defines the “forward” Time arrow direction from Planck’s epoch.

Number 3) suggests that, at a center of gravity, Universal Time flow was stopped and a new Time flow restarted. It also says that in flat space Time flow is always at the maximum velocity possible to still flow. The fact is that when Time flow accelerates, the Time laps get shorter and, consequently, so do distances. It would mean that Time laps have a basic metric just as distances have, but they are not the same.

Number 4) explains that Time is motion related; which is easy to understand since if you don't have Time allowed to you, you can't move. It also says that whatever the speed of your "forward" motion, it's always a "gain" on the Universal Time flow, making it relatively slower for you. Which also would mean that the Universal Time flow is an "absolute."

Number 5) states that at light speed Time is stopped and distances disappear.

We can then add:

1a) Time started at the same instant as "motion" did; which means that "motion" started when Time lost its zero value. To have a movement, you need kinetic energy; and as soon as you get the smallest kinetic energy, motion starts and so does Time flow. If kinetic energy accumulates, Time flow speeds up.

2a) that the motion involved defined a "distance" without implying space since space appeared later. The only possibility is that the distance involved was a "surface" (bi-dimensional) distance; which is quite normal since a distance cannot be a "volume".

3a) a center of gravity is the start of one Time flow. But at the beginning, there was no center of gravity. That doesn't mean that there was no center at all since everything started with a unidimensional "point"; which became the center of a spin motion.

4a) It is the movement that depends on Time flow; not its velocity.

5a) motion speed, limits the Time flow and thus distances.

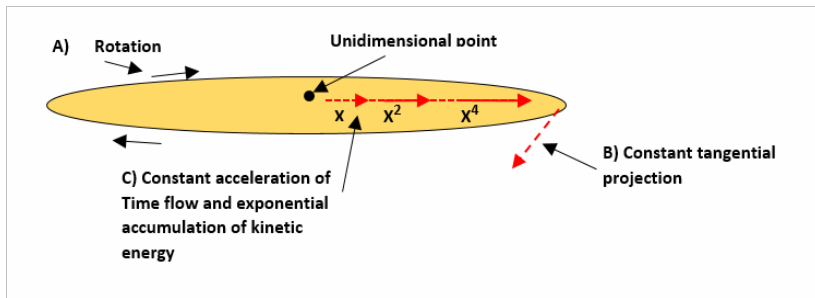
Consequently, Time flow is the basic universal motion that produces distances thus creating space, related to its speed between zero and light-speed. The slower Time is, the greater the defined Time lap is; thus the longer the distance is. For example: at light-speed, the universe has no volume at all. So, either there is a basic speed, or



there is a basic Time flow. But we know that there is effectively a basic distance in our universe. And the Time flow for that basic length is at light-speed since it takes  $10^{-43}$  second to cover  $10^{-35}$  meter at this speed. Consequently, we have two basics measures.

If your mind is not having blips or even jolts right now, you are one of the most perfectly stable minds I ever met. As for me, I'm all mixed up. So if you don't mind, I'll start by visualizing the start of Time.

The starting point is a unidimensional point that starts to rotate and expands because of the centrifugal effect. After three rotations, this is the result:



As we know, in a rotation, the centripetal (thus centrifugal) effect is in a constant acceleration; which increases the speed of the tangential projection.

On the drawing,  $x$  is the basic value of kinetic energy that is always equivalent to the basic lap Time value that we will call "t."

So,  $(t = x)$ .

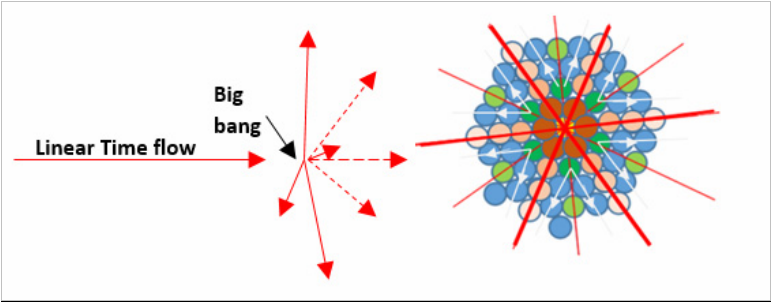
And they both progress exponentially (in the epoch's environment), which gives:  $(t^y = x^y)$ ; "y" being the number of rotations.

Not to forget the centripetal effect we will call "p," which also progresses exponentially but has a smaller starting value which we can show as:  $(p < t)^y$ .

We can see that the Time flow progression is linear. That will last until the advent of the Big bang at  $10^{-43}$  sec when the Time flow will start traveling in every direction.

We must note that  $10^{-43}$  sec will be the equivalent of our  $t^y$ .

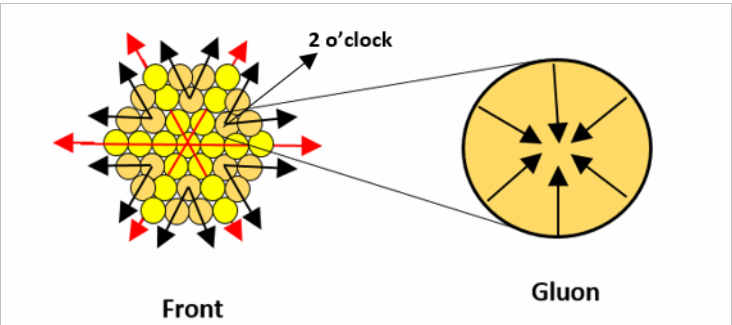
Now; what happens at the Big bang, is that our linear Time flow is propelled in all forward direction through space that its motion creates. But, as we've already seen on many occasions, the space expansion has to be a duplication of the basic space metric; which limits the Time flow to precise angles of propulsion.



So when viewed as a surface of  $360^\circ$ , we have the figure of a "Time clock" where Time flow progress "freely" at 1-3-5-7-9 and 11 hrs. And we see clearly new other non-energetic Time flows (in white arrows) dragged by the leading Time flows.

So, out of those 360 degrees, we have 180 related to the Universal Time flow which is 50%. The last 50% being other related Time flows.

And the gluon came up at  $10^{-36}$  sec starting its personal Time flow (we will consider only one, situated at 2 o'clock):



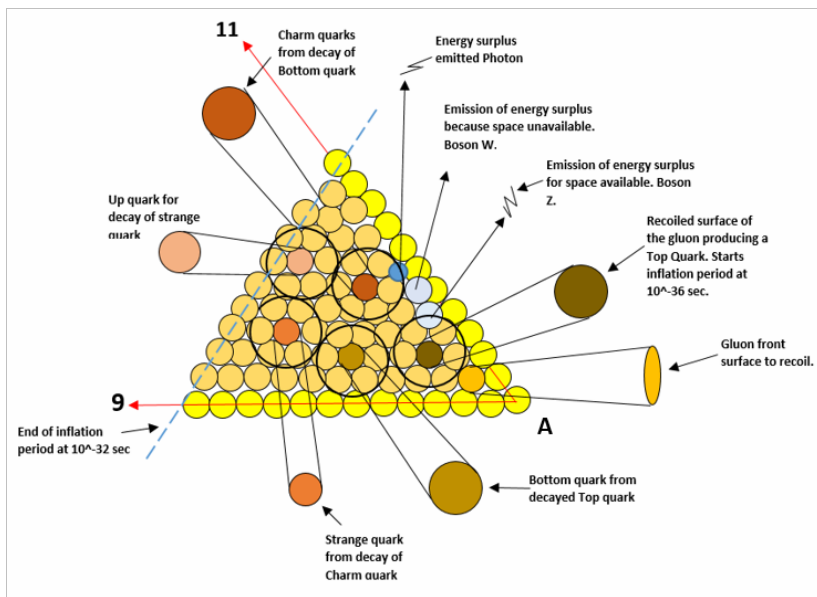
As we can see, it installed itself where the dragged Time flow first appeared. We can also see that it was split in two right afterward.

You can also observe that its topology, sending everything to its center, prevented it from energizing the space metric it occupied; so his surrounding density of kinetic energy was balanced through all

space. But being dragged in all directions by the Universal Time flow's energy, its front surface was separated from its back surface; like we've seen previously.

And that's when a new event ensued. Let's look at further duplications of the space metrics.

To do so, while keeping precision, we will develop only one sixth of the whole Universal Time clock; let's say, the part of space growing between 9 o'clock and 11 o'clock. The event starts at  $10^{-43}$  sec and ends with the inflation at  $10^{-32}$  sec. The Time flow starts at the A position:



You will not find Down quarks on this drawing because I didn't identify the AntiTop quark decay not to overload the drawing; but they are present.

But this changes the % allotted to the previous 50% of dragged Time flows that were secondary. Because we now have  $5 \times 6$  parts = 30 (in fact four less because of less matter in 6 and 12 o'clock portions) more new Time flows related to matter only. Then the  $26^0$  of matter related to secondary Time flow would be 7%.

Now if we work with that 7% and look at the drawing, we can see that each matter particle influences six other surrounding space metrics which brings its influence, on the whole picture of the universe, to 42% of space.

The total universe would then be composed of 7% of matter, 42% of altered Time space metrics and 51% of “flat” Universal Time flow space metrics.

Then again, this would be the composition of the universe, before the annihilation of anti-particles which made disappear a portion of that 7% of matter.

Today, we know that there is 4, 9% of matter in the universe; which would mean that only 2, 1% disappeared during annihilation. In order to be so, there had to be a great quantity of exotic hadrons to exist at the annihilation instant. In fact, this 4, 9% of matter had to be “secured” inside exotic hadrons. Research is done actually on exotic hadrons. They are definitively proven to have existed. The other condition to make this opinion right is that anti-exotic hadrons could not have existed; otherwise, they would have annihilated one another (or maybe the annihilation of their components weren’t total).

Nevertheless, the 4, 9% of matter would then influences 29, 4% of its surrounding space, which leaves 65, 7% of Time flow through “flat” space. These figures are pretty close to the Planck’s results giving 26, 8% for dark matter and 68, 3% for dark energy (+ and – 3%).

Let’s rejoin our Universal Time Flow at the Big bang.

The first volume of space appeared when energy was propelled in all directions. Was it following the Time flow or was the Time flow following the energy? We cannot say before finding the nature of that energy.

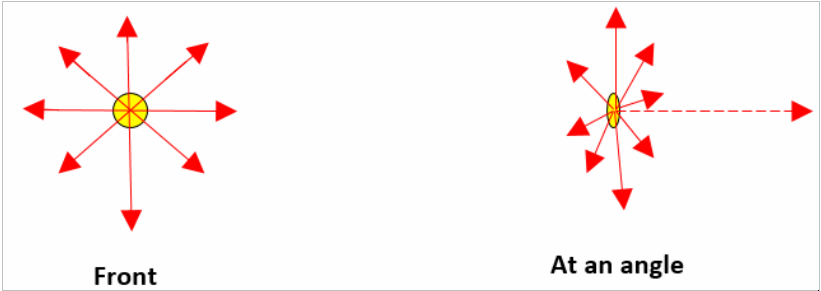
But since it involved “motion,” there’s no doubt that this energy was kinetic.

And we have seen that this energy cumulated during Planck’s epoch from a rotation motion. So since the only cumulating energy possible in such a motion is due to centrifugal effect’s constant acceleration, we can surmise that the acceleration being tangential to the rotation, was accumulating in the direction of increasing distance from the axis of rotation. This direction was also the Time arrow

“forward” direction. So we can relate the Time arrow directly to the kinetic energy released at the Big bang.

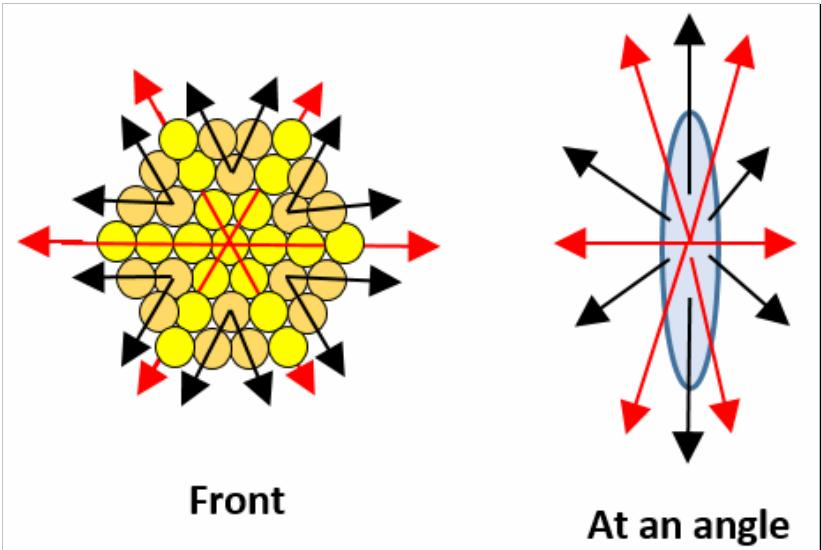
Let’s make drawings that show the forward motion of energy propelling in all directions as space metric duplicates defining the trajectory of the Time flow.

**At  $10^{-43}$  sec** (drawing no 1)



**At  $10^{-36}$  sec** (drawing no 2)

While basic space metrics where duplicating:



Now, what we see happening at drawing no 2 is that a secondary Time flow **HAS** to start; because the duplication of the space metric inevitably installs some metrics “outside” the direct influence of the Universal Time flow. That is where all the black Time flow arrows start. Which means that it wasn’t the appearance of the gluon that

provoked a new Time arrow; it was the requirement for duplicating the space metrics that was responsible for it. We can also add that no “weight” or “gravitational effect” whatsoever was implicated. It was only geometrical “restrictions.”

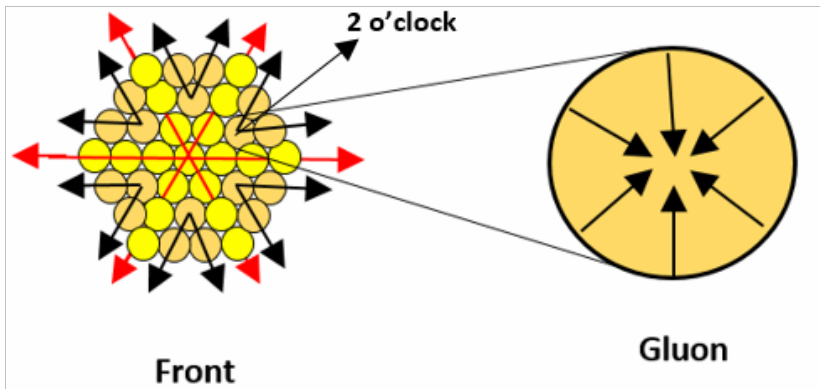
Even so, this new “side tracked” Time arrow was deprived of “inner” energy. It was “passively” dragged along, by the different Universal Time arrow “forward” directions. Consequently, it was the perfect non-energetical, neutral, space metrics for the “full of inner contrary oriented energy” gluon to install itself.

We also see the appearance of the first “Timeclock” ever, defining the Universal Time flows at certain specific “hours.”

But how did that energetical gluon looked like, installed at this first neutral space metric?

Let’s recheck our drawing with the one installed at 2 o’clock:

Drawing no 3:

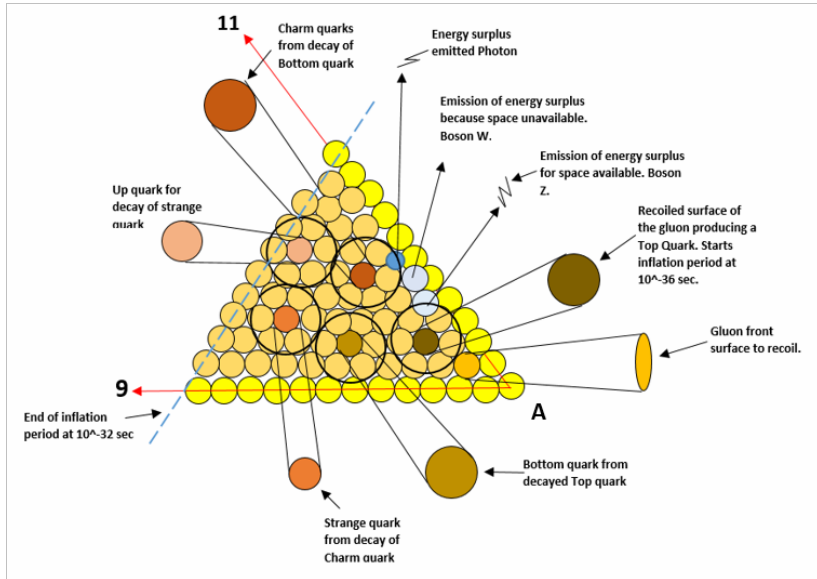


“Check <https://profmattstrassler.com/articles-and-posts/particle-physics-basics/the-known-apparently-elementary-particles/jets-the-manifestation-of-quarks-and-gluons/b-tagging-identifying-jets-from-bottom-quarks/>. Which might me relevant.”

As you can observe, its topology, sending everything to its center, prevented it from energizing the space metric it occupied of which the, still dense, kinetic energy remained controlled by the universal Time flow. But the gluon being dragged by the Universal Time flow’s energy in all directions, its front surface was separated from its back surface; like we’ve already seen previously. And that’s when a new result ensued. Let’s look at further duplications of the space metrics.

Reusing a precedent drawing, and resuming it, the event starts at  $10^{-43}$  sec and ends with the inflation at  $10^{-32}$  sec. The Time flow starts at the **A** position:

Drawing no 4:



Now if we analyze this drawing, we find that the balls are strictly metric space duplicates containing the balanced overall kinetic energy density; while all darker balls, being gluon issued quarks with inner density energy, are gradually trying to balance with the surrounding energy density in their occupying metric.

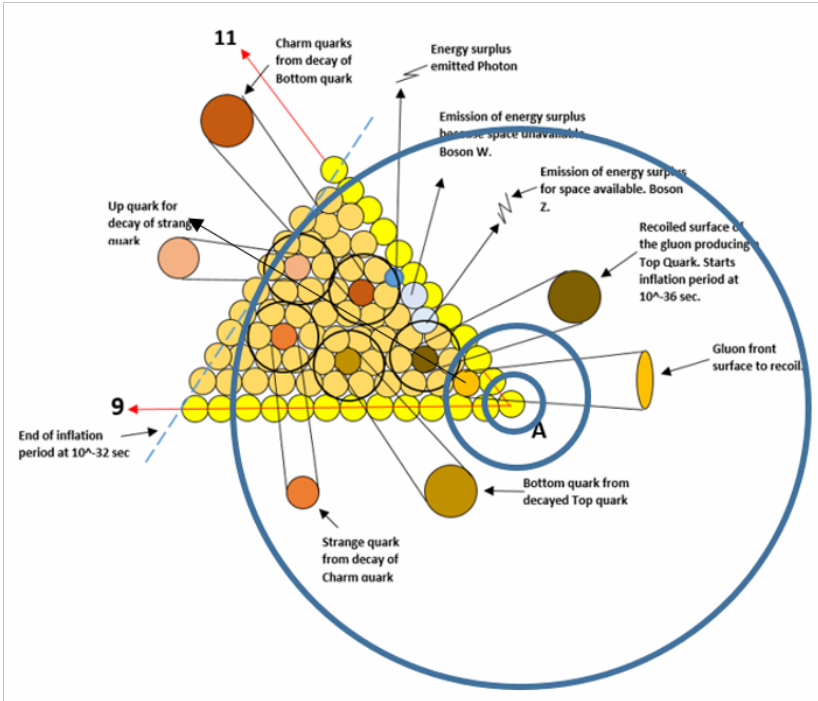
All these balls are dragged by the Universal Time flow, but they also have their own “date of birth”; which gives to each of them their individual non-energetic “Time flow.”

The black circles around each quark represent the volume of space covered by their gravitational effect on their surrounding density. This effect augmenting the energy density is the reason that quarks kept a lot more “inner” energy than there was in balanced overall space metrics. Time deformation was now installed in the universe.

As space continued to expand, those denser energy volumes increased, also defining several corridors of energy densities. We mustn't forget that each space metrics on this drawing was duplicating at the exception of quarks space metric that had their expansion “blocked.”

We will now try to find how the shell pattern that we find around a nucleus was first defined; because it had to be defined before the structural installation of electronic shells,

So we will take our precedent drawing of multiplying space metric. We must not forget that shell's density is related to the Time flow. Added circles in blue are the borders of the shells using the A position as the center point:



Ok, so we have our three first corridors.

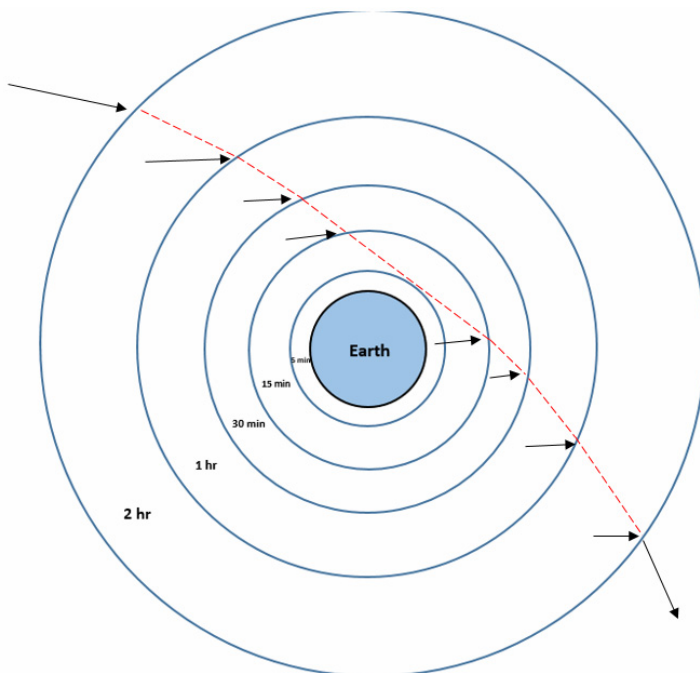
1<sup>st</sup> corridor: strictly space metric full of Time flow energy that dilutes with expansion (radiating period).

2<sup>nd</sup> corridor: Includes where the second “not energetical” Time flow started (black arrow), and where the most energy is possessed by gluons; which will sum to six inside this corridor.

3<sup>rd</sup> corridor: Density of energy augmented by the presence of energetic quarks. Including the missing Down quark that is produced by AntiTop decay; which makes six quarks. Furthermore, in this shell, the dragging of Universal Time flow is “blocked.”



But what could justify the enormous difference in energy density that we find in the next corridor (4<sup>th</sup>) not define here? The answer is rather simple. The 4<sup>th</sup> corridor is quite a bit larger and includes the annihilation period where particles and antiparticles annihilated releasing an enormous amount of “light-square” mass-energy that was confined inside these destructed particles. This 4th corridor is where we have 36 electrons energy density. And this energy density is all kinetic energy as in the preceding shells; because releasing mass-energy transforms it into kinetic energy. The number of electrons (36) in this shell suggest that 25% of massive particles/antiparticles (light speed square) where annihilated doubling the energy during this shell’s interval; which means around 2% of existing massive particles/antiparticles. The rest was inside exotic hadrons. So that would be the answer to when the first pattern for electronic shells developed. But we’ve completely lost track of our Time flow subject. Let’s get back to it and try to make its influences evident to our mind. We will analyse the Time flow around our planet concerning its flowing intensity. So we know that the farther you get from the earth’s center of gravity, the slower Time flows. We will make a drawing showing this using exaggerated time length:

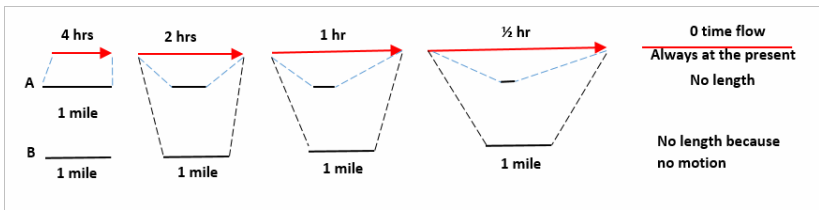


As we can see, the result of crossing different Time lengths traces a same curved trajectory as if there was a space deformation; and the curvature depends on the speed of the object. The less speed it has, the more curved its trajectory is. Which explains why an object moving too slowly will “fall” to Earth. And it’s not because of “attraction” or “curved space”; it’s because its slow speed makes it curves too much.

But then again we observe clearly that all axis either of the planets, solar systems or galaxies are in a straight line; which would be impossible if space was “deformed.” So it has to be Time that is deformed in its “geometry,” which consists exclusively of its Time lengths (metrics).

Now we have left to check the meanings of slowing Time etc. and its effects.

We will do another drawing showing Time flow increase (red arrows) versus space and Time decrease.



– Line A shows decreasing distances proportional to increase of speed Time flow; we see that it takes less time to cover the same distance. Which shows a relation between lap of Time and distance, rather than Time and distance.

– Line B shows stable distance while increasing speed of Time flow. This would be the usual intuitive event and would mean that line A is an “impression” caused by the increasing speed.

But the last portion of line B confirms line A since in the absence of Time flow there can’t be any distances. So Einstein is right when he says that increasing speed does decrease distance.

It also means that in a stable Time flow speed, the distances are stable. Which means that the “personal” Time flow of “matter” is stable since matter distances are stable.

But then, increasing speed while “falling” toward a center of gravity is only an “impression” since it is the metrics of Time that decreases.

The proof is that a too slow speed drives you to impact the planet. If you were increasing speed, a falling object with only a bit of speed missing to orbit would change trajectory while falling and return into orbit.

So there's a difference in increasing velocity in space and seemingly increasing velocity in "altered" metric of Time. The difference is that increasing velocity in space needs propulsion or "added energy"; while the seemingly increase of velocity in "altered" Time metrics doesn't need any propulsion since it's not an increase of velocity but a reduction in Time traveling.

Needless to say that it is not a decrease in velocity; which would mean that increase in density doesn't affect the velocity of an object. And that kills the notion behind the Higgs boson giving mass to particles by slowing them down. And again, I've mixed things up, because the "corridors" around the Planet are "Time metric" density corridors; and not "space metric" density. If the energy of space metric were denser, the velocity would decrease. This saves the Higgs notion, but condemns Einstein's geometric deformation of space.

It also confirms that the diluting of energy, by expanding space, increases the Time flow in "flat" space; so it has to accelerate expansion. Even though duplication of basic space metric was always done at maximum speed possible.

Nevertheless increasing speed also means increasing "energy density" since the same amount of matter (made of energy) decreases in length. This would explain the increasing density we observe while getting closer to the planet's center of gravity, but it's not the result of increasing velocity; it is the product of increasing gravitational effect on the Time metric.

So if we resume:

- 1) Increasing velocity decreases distances and slows Time.
- 2) "Gravitational effect" affects the Time flow and not the space metrics.
- 3) Kinetic energy density is diluted by Time flow; just as much in "flat" space than in "altered Time" space. But gravitational effect in corridors defines the kinetic energy related to each corridor concerning its Time affected. And only the corresponding kinetic energy of objects can orbit in each corridors.

## Chapter 26

# Simplification

— **W**ell, sir, I don't know about the other's opinion; but as for me, I doubt that a child can understand your story of the universe. It's getting more and more complicated.

— That's because we are scrutinizing a lot of possibilities; if we stick with realities we find, it becomes a lot simpler.

Let's see what we can conclude, using what we've found yet, to explain the Universe:

1: Space has a primary metric that cannot be altered, whatever the circumstances.

2: The duplication of the primary space metrics represents the expansion of the universe.

3- The expansion of the universe accelerates because of the gradual diluting energy density in the environment; which decelerates the flow of the Universal Time. This happens because speed has a limit which is light speed.

4- The energy formerly owned by the gluon's action field, doesn't "mix" with the neutrino's universal flow of energy; it only adds its "freed" kinetic definition by giving motion to matter. That energy is then "confined" in matter trajectories.

5- Gravitation doesn't affect primary space metrics which cannot be extended or compressed. Consequently, space is not "deformed"; it's the Time flow that is "altered" by gravitational effect.

I think that this is all there is to know, to comprehend the history of the Universe. It could be made even simpler by stating that the Universe is composed of one single energy: kinetic energy. When it is oriented towards everywhere, you get a "flat Time topology" that provokes exclusively straight trajectories. When it is directed towards a single point of space, you get an "altered Time topology" that produces curved trajectories.

— Very well sir; let's accept that it is simpler to understand. The remaining question would be: Does it explain the remaining "mysteries" in our science of the Universe?

— Excellent question. Let's enumerate those "unsolved problems" and see if our "facts" illuminate them.

A) Why is there more matter than antimatter?

We've found the single plausible answer, which is that Up and Down quarks took refuge inside exotic hadron particles escaping the annihilation period.

B) Where is all the lithium?

If lithium was produced in a sufficient quantity during primordial nucleosynthesis, it has been the initial cause of galaxy production by accreting lighter particles as hydrogen and helium. Which would be even more significant than our helium based Galaxy production that we have identified. It could even define the three "generations" of stars (Lithium, Helium, and Hydrogen).

C) How does gravity work?

Gravity doesn't "work," because it has no energy. We've shown precisely what its individual effects are. As for their "interactive" effects, they are simply "tidal wave" effects that we've explained.

D) What is dark matter made of?

We have seen that there's no need for dark matter since gravitation has no "pulling" effect; it has no energy. What is the use of adding matter that doesn't have any energetical effect?

E) What is dark energy?

What we call dark energy isn't anything that exists "per se"; it's an effect resulting from the diluting energy **density** that provokes acceleration of the primary space metrics duplication.

F) The wave/particle mystery.

There is no mystery; the wave function belongs to the "probability portion" of the history of the Universe, while its particle function belongs to its "possibility portion" that followed. The particle function is simply a later more defined (evolved) characteristic of the wave function by mass-energy.

G) Why does light have a universal speed limit?

We saw that the accumulated energy during Planck's epoch was kinetic energy. It had attained a particular intensity when occurred the Big bang at  $10^{-43}$  sec. That power of kinetic energy was then released giving to expansion (duplication of the primary space metric) a velocity equal to light-speed. There never was any other free kinetic energy produced, so light-speed is an "invariant." It is, although, related to the diluting energy environment; so the ratio of the basic space metric duplication can increase and, in fact, does so. But always doing it at almost light speed. The ratio augments because the number of space metrics increases; not the speed.

H) Quantum gravity.

We've concluded that any gravitational effect is equivalent in relation to the environmental energy **density**. So gravity is always effective whatever the epoch.

I) Quantum entanglement

The major factor that makes entanglement so mysterious is that we never take into consideration that electromagnetism is a continual "present state of Time" through all the Universe. So whatever information an electromagnetic particle or energy quantum possesses, the whole universe possesses it at the same "moment." There are no "distances", no "past", and no "future" involved.

J) Are there parallel universes?

Other universes are simply illogical since the word itself means “All that exists.” Parallel universes stand in the “non-existing” part of the mind questioning and the “impossibility” portion of mathematics.

K) What is the fate of the universe?

The only fate will be that it’s going to “realize” itself. It’s going to define, in reality, the potentiality it had at its beginning. There is no other issue possible.

L) Is there order in chaos?

Chaos isn’t real. It’s an impression we get in front of the complexity attained by evolution in defining more precise possibilities, to find the ultimate reality that has to be hiding in all those possibilities. That progressive precision in definition results in what we call “entropy.”

M) Do the universe's forces merge into one?

If they did, God would be the proof. But since there are no such things as “forces” but only resulting “effects” of preceding situations, the question is insignificant.

N) What happens inside a black hole?

This question is to give “thrills” to people that feed with “mysteries” and “fear”. We’ve answered the question using simple logical facts anyone can find.

O) Do naked singularities exist?

A singularity isn’t “mysterious” if you quit getting obsessed by “infinity” which is a notion that doesn’t exist either. Dressing up a singularity with “infinity” makes it far from “naked”, it hides it; which is the reason you’re asking the question. A singularity is a naked “crushed” space volume.

P) Violating charge-parity symmetry.

Charge symmetry is never violated; except with particles that don’t have an anti- particle (photons, gluons, and neutrinos); meaning no existing symmetry. You can’t violate something that doesn’t exist.

Q) When sound waves make light.

Sound waves have kinetic energy, and if you stop a sound wave by making “hit” something, it’s normal that its electromagnetics kinetic energy expresses itself with the release of quanta of electromagnetics kinetic energy, called a photon.

R) What lies beyond the Standard Model?

Nothing. Whatever lies anywhere regarding this question is a better comprehension of the model. And it’s not by “imagining” all sorts of new particles (exotic or not) that the model will become simpler to understand and explain. Get rid of the obsolete “out dated” concepts in physics, and all will become sparkling clear.

S) Why are Fundamental constants values invariants?

Because they represent all resolved results of evolution. There is no other value possible to be “viable”; which means to “exist” effectively.

T) What is the universe made of?

That’s no mystery. The universe is made of 100% of space, with 5% occupied by matter which disturbs the Time flow of nearly 30% of the 100% of space.

U) Huh... That’s it. No more mysteries.

— Excuse me, sir.

— Yes?

— Is there a simple geometrical explanation that we can rely on?

— There is, effectively; let’s have a look at it.



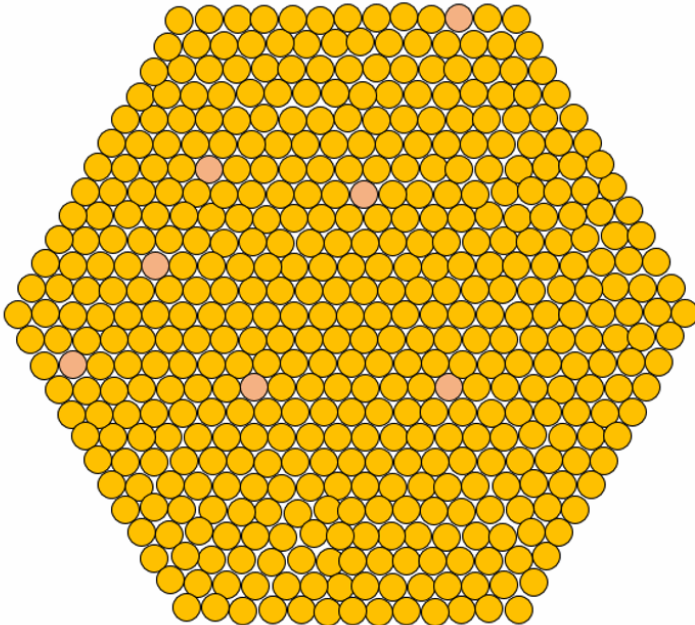


## Chapter 27

# Geometrical explanation

**W**e've used geometry with a lot of words. Let's try to resume the evolution story of our universe geometrically with fewer words:

The following sketch is the space structure resulting from the necessity, for its basic metric, to duplicate:



Each of these small “space” balls is composed of unidimensional points inside them, that extends in all directions; which means that our universe is Euclidean. Each ball has  $10^{-35}$  meter in diameter.

We have to admit that if this arrangement of space surrounds us, there’s no way we can find a center to the total structure. In fact, there’s a unidimensional center in each ball which has a Plank’s length diameter.

The expansion of space occurs because each of those small balls continuously duplicates themselves. First, the energy takes the time to travel through one ball, which is  $10^{-43}$  second; then it duplicates. The overall speed of duplication is “almost” at light speed. It is slightly retarded because of the duplication necessity.

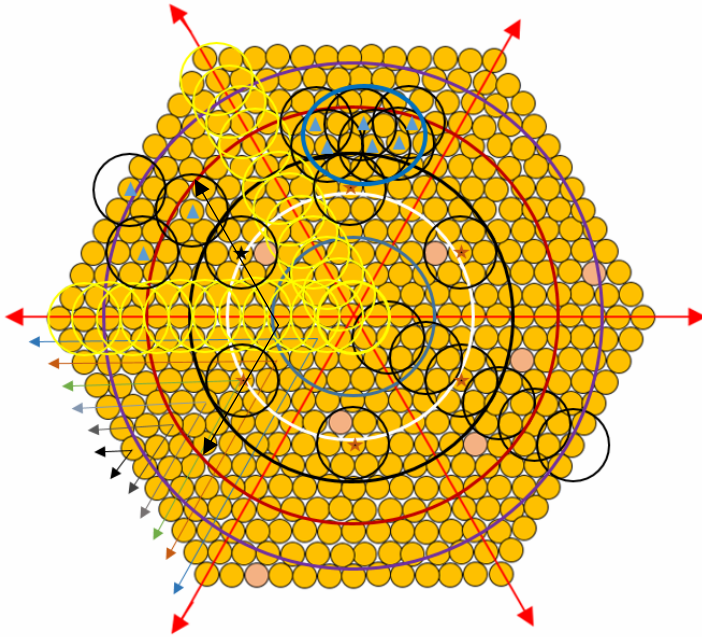
When the first ball appeared, it contained all the energy that our actual universe contains. The duplication of that primary metric produced additional space into which the total invariant energy spreads because those “balls” are metric volume without “containing” walls. And it is still proceeding the same way today.

Each ball covers kinetic energy. And since there is no containment of that energy because the balls are simply “space metrics,” the energy spreads out evenly through the total of the space produced.

The first space metric (ball) originated from a transition phase of the Planck’s epoch, which, itself, started at Time = zero.

Time had been “flowing” for  $10^{-43}$  second when the first ball appeared as a space volume.

Time continued “flowing” after the big bang; but instead of “flowing” in one single forward trajectory like before, it spread in all forward directions of space. The Time arrow “shot” from the center of the first space metric (ball) through all metrics aligned with that first space metric (red arrows).



All other metrics (balls), not aligned, possessed their date of “birth” which started a personal Time flow dragged by the main Time flow. I’ve circled in yellow some off the space metrics controlled by the leading Time flow (9 and 11 o’clock).

The metric with a black star at its center (10 o’clock) is the first space metric that is completely independent of the main Time flow. There are five others (brown) in the same white “circle.” Those are the ones that will be subjected to gravitational effect with their surrounding metrics as shown, circled in black. As you can see, there are no possibilities to produce successive independent, viable massive particles (blue triangles) having the same density when subjected to gravitational effect. Greater “tidal wave” effect than shown at 10 o’clock, on the drawing, would result in merging particles producing an exotic particle; like shown in blue, at 12 o’clock. Note that this exotic particle wouldn’t have a defined center of gravity which makes it unstable. This unusual event is what probably happened before particles were able to stabilize like at 10 o’clock. Exotic particles (exoquarks) preceded standard stable particles (quarks). The result was that there were quarks protected from annihilation because of their differences in density (lower) inside exoquarks particles.

The farther away a “ball” (metric) was from the main Time flow, the slower was its proper (personal) Time flow; even though duplication kept the same ratio.

Each different Time flows are shown on the left bottom part of the drawing. It’s easy to see the difference in intensity flow related to the proximity to the main Time flows of 9 o’clock and 7 o’clock. We can also see that a different Time flow appears for independent massive particles; the angle of flow is quite a bit larger as shown at 10+ o’clock.

To understand that the Time flow could be different for the balls at the same “moment,” we just have to compare our Time flow to the one of a mosquito; its Time flows faster than ours even if we live in the same epoch.

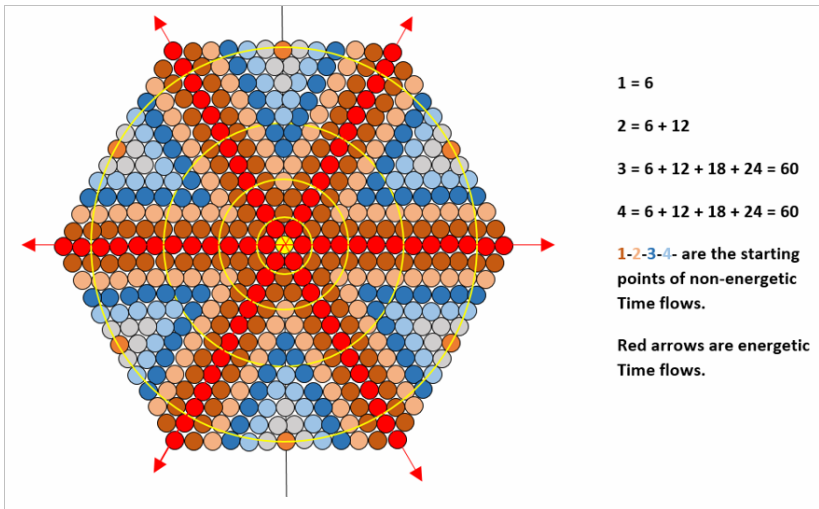
On the right bottom part of the drawing, you can imagine, in the succeeding black circles, the decreasing energy density of space with the progressing duplication of the metrics.

The yellow circle at the center of the drawing represents the “full intensity” of the Time flow, right at the first duplication of the primary space metric. It keeps its strength right through all in lined space metrics, as we’ve said earlier.

The progressing bigger circles around the center show the difference of space metrics energy density equalized at each succeeding epochs. In each of them, we can see the decreasing density from the inner border to the outer edge.

All that exists in this total volume is “space,” “Time” and “kinetic energy.” It represents the radiating period at the beginning of the Universe confirmed by Planck’s satellite. It lasted from  $10^{-43}$  sec until  $10^{-36}$  second; then centered oriented topology appeared where Time flow was the less intense.

Now here is the “effect” in space, resulting from the Time flowing differently through duplicating metrics:



A similar color shows proper (personal) Time flows of series of metrics. . Different colors show the different intensity of Time flow.

I've made circles (shells) around the gradually increasing number of space-Time metrics (in red) and counted the space metrics outside the main Time flow each shell contained. The compilation is on the right of the drawing. To have the exact amount of metrics in each shell, we have to add the red balls (Time flow metrics). So 1 = 6, 2 = +12 (30), 3 = + 18 (78), 4 = + 24 (84).

The more the initial density of the total kinetic energy dilutes, the more it is "relieved," of "pressure" and the metrics duplication number augments. This release explains the acceleration of expansion without the need of "dark energy."

This acceleration is what still exists today regarding 100% of space.

The space of our universe has a "flat" topology.

5% of that universal space is occupied by "mass-energy" that affects the secondary Time flow of metrics involved. The "effect" of that "mass-energy" extends to around 30% of all Time flow of corresponding space metrics, but it never affects space itself.

I guess that this is the simplest way of explaining what space and Time are and what their involvement is in the universe. "Space-time," as a whole, like science sees it, originated from a need for

known defined mathematics; it obstructs the real comprehension of the universe.

The first obstruction to this comprehension though is the fact that gravitation still is considered as being universal and applies to space-time, instead of Time only. When gravity gets to the point of affecting "space," it destroys it, crushing its volume into a surface, thus producing a black hole. Before creating an "event horizon," mass energy is stronger than all kinetic energy involved; but when matter volume gets crushed into a surface, all mass-energy it contains (with an intensity of light speed square) is released and directed to the center of gravity of the black hole. Then Time is reversed, and nothing can stop the collapse anymore.

So all the preceding is how geometry explains the universe.

Consequently, I guess that my story of the birth and the life of the Universe is at an end. You have all the ingredients needed to continue that story or dig deeper in explanations of events we have presented.

There also are new ways to be found for calculating events in this geometrical view of the universe. They should be more conformed to reality.

See you all tomorrow.

## Chapter 28

# Deviated trajectory

**G**ood morning everybody. We won't take much time today because all I want to do is precise three items that are related to the deviation of trajectory by affected time.

We've already seen that time flow is related to space production, which means space expansion.

And the space expansion is related to kinetic energy and not to mass-energy, since mass-energy didn't exist when the expansion began.

So let's see first what happens when kinetic energy applies.

We have surmised that time flows at light speed, which is an invariant of 299792458 meters covered in one second. Whatever meter you subtract from that amount decreases the speed, and whatever time you add to that second also reduces the velocity.

So how can expansion celerity increase with a time decreasing rate?

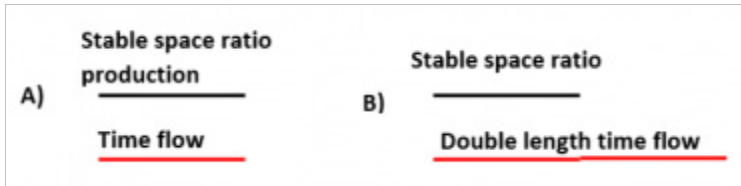
It's easier to understand if you consider the right information. What increases in expansion is the production of space metric, but the "ratio" stays the same as "doubling a space metric." Space expands faster because there are continuously more space metrics that duplicates at light-speed.

The exponential production of space can be presented as the following:



Let's say that, in one second, 50 primary metrics duplicates into a 100 which total clones once again, in the next second, into 200 basic metrics which duplicates, in the third second, into 400... and so on. We can see how space production increases exponentially even if the duplication process (ratio production of one for one) is stable.

So let's see what happens when a time flow is extended while a space ratio production is stable:



It's easy to understand that when time doubles to produce space at the same rate, time flow gets slower since time is added to the same ratio production. The resulting slowing of time flow is generated by a stable space ratio production while time is continuously extending.

We've also seen that kinetic energy **density** provides a passive "pressure" that slows space production; just as the density of a Higgs field delays a particle motion by its surrounding passive density pressure, thus giving it mass. If this notion of density "pressure" is good for delays inside a Higgs field, it's just as good reason for delaying metric production in space dense energy "field" without changing the ratio.

On the other hand, continuous space production diminishes the energy density which then, reduces "pressure," permitting a gradual acceleration of space production. This fact explains the acceleration of the universe expansion, **without the need of dark energy**.

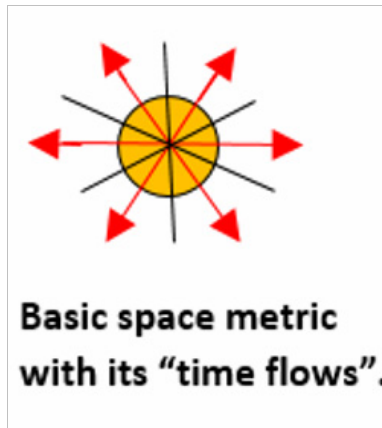
This portion takes care of the kinetic energy of "flat" space topology.

But what occurs in an altered space-time volume?

We've seen that mass-energy is the same as kinetic energy, with the difference that the energy is oriented towards one single definite point of space (mass-energy) instead of every point of space (kinetic energy). The energy's "active" pressure on that precise point of space makes it a center of gravity.

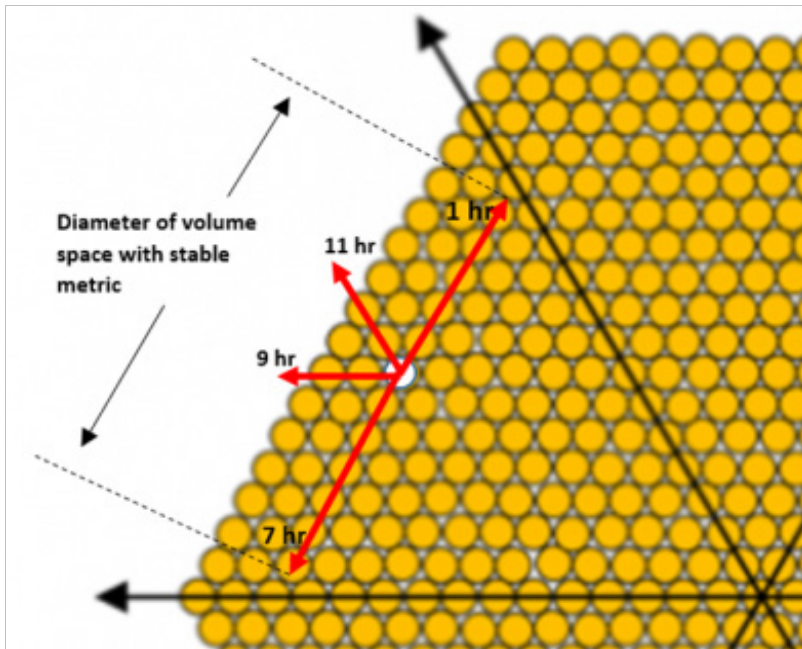
The **operating pressure** of mass-energy on that definite point in space stops the duplication of that point to the distance space volume it has attained. And the volume of space surrounding that center points adopts the same metric until another factor enters the equation. We will see this event a bit further on.

Stopping the duplication of a space metric at a certain “moment” is not stopping it in “space”; it is blocking it in “time.” In other words, time is momentarily stopped at that center point. That defines the point’s metric “birth” as a stable volume metric. And the single time flow “piercing” through that centered basic space metric becomes “personal” and starts, from this point, to flow in several directions as it was defined to time flow, when occurred the second duplication of space metric, and was confirmed by the following duplications. The flowing of time for that blocked centered space metric follows the “hour structure” of a time clock as observed previously.



We have seen that some angle lines of hours are straight lines of fundamental parameters where universal time flows freely, while other space metrics produced within the gradually “opening” angles of free-flowing time are “passive” (in black). That is the portion of space where our mass energy operates, and that is where the blocked expansion of space metric can occur.

So let’s have a drawing of that blocked basic metric event in one of those six passive portions of the universe; let’s say between 9 hr and 11 hr universal time flows:



Time always flows forward following the time arrow; so starting at the white blocked space metric that we have chosen on our drawing, it flows freely where space metrics are in line. Which is at 7, 9, 11 and 1 hr.

The 9 and 11 hr are the continuous forward flowing time of our blocked space metric. But the 7 and 1 hr time flows are flowing "sideways" from the white blocked basic space metric. Each of them reaches one of the two universal time flows and merges with it (shown by the red arrows).

These two secondaries time flows had to travel through a certain number of space metrics before merging with the primordial universal time flow. This "sideways" traveled distance defines the diameter of the volume of space affected by the blocked in time center point of gravity. The total "sideways" distance is also a "present status" line that progresses forward in time, toward the future, at the same time level as the center of gravity.

We can also note that since we cannot observe our present status because it keeps evading forward from us, all we see is the past portion of the flowing present time event. If we transpose ourselves as the drawing's white blocked center of gravity, it's like if we were

progressing spatially “backward” toward the future, always “timely” facing the “past.” These “facts” also add clearness to our progressive understanding of “space” versus “time.” An entirely clear understanding might reserve very major surprises.

Nevertheless, since the time flow of the universe decreases related to the **stable ratio** space production, time flow of the “present state line,” inside a volume affected space, decreases the same way concerning a blocked **stable metric** space volume, starting at the center of gravity. Which explains why time ticks faster near a center of gravity than farther away from it.

And we must note the difference between that decreasing time volume of the future surrounding the flowing present status of the time metric and the stable “past volume” space metrics surrounding the present status of the basic blocked space metric. Time is an “active” alteration process, while space is a “passive” stable state.

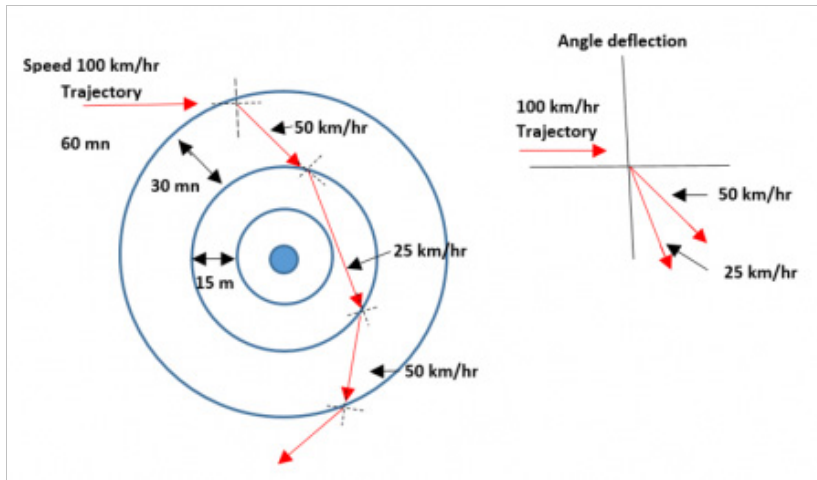
And these events are what occurs in a space volume altered by mass-energy.

Now what is left to do is show how altered time can deviate a trajectory.

First, we have to understand that time flows all around the center of gravity of a planet; time is “active” and is related to universal kinetic energy. It flows freely through individual canals where basic space metric is perfectly in line. So the gradual decrease in time follows the gradual decline in kinetic energy density as it moves away from its center of gravity. This permits us to define time “corridors” circling the planet.

We will consider a constant speed of 100 km/hr in a 60 minutes “corridor” as representing a straight trajectory in “flat” space topology. Our object will enter and cross a faster time ticking corridor of 30 minutes, surrounding another corridor where time is still faster, meaning a 15 minutes time corridor. And we will observe what happens to our horizontal trajectory in the 60 minutes corridor. The cross graphic on the right side of the drawing represents a 100 km/hr speed as the horizontal line, while the vertical line represents 0 km/hr. The grid is reproduced at every deviation of the trajectory.

So here is the drawing showing it:



Our horizontal trajectory entering in a twice faster-ticking corridor takes double more time (ticks) to cover the corridor space, which means slowing its speeds by half, represented as the forward, downward red line oriented at 45° between horizontal 100 km/hr and vertical 0 km/hr. If the speed had increased, it would have shown as a 45° upward trajectory. Up is always toward the outside from the center of gravity.

Entering the next corridor where time ticks twice as fast (15 minutes), the object's speed, previously divided by half, is once again reduced by half, represented as an additional 22 ½ ° downward deviation (half of the remaining 45° toward zero velocity) of its trajectory. Coming out of that 15 minutes corridor, the object regains speed, because of the slower time ticking in the 30 minutes corridor and redresses its trajectory by 22 ½ ° (twice the preceding speed).

In re-entering in the 60 minutes corridor, the object doubles its speed once more, regaining the original speed it had before first entering the 30 minutes corridor. Increasing its speed redresses its trajectory by 45° and recovers a straight trajectory in "flat" space. But its trajectory is now an entirely different orientation that it had before entering the time altered space volume.

These succeeded events are how a trajectory curves, slows down and speeds up, while affected by continuous time decreasing which we observe at different orbital distances from Earth. In reality, the celerity of the object never changed only the time factor of speed did. And since the real decreasing of time is a smooth reduction instead

of the "violent" differences we used, the trajectory comes out as a smooth curve.

Another "fact" we mustn't forget is that we have seen previously that universal time flow slows down because of the increase of basic space metrics production at a stable "ratio." This slowing of the universal time flow doesn't provoke a curvature of its trajectory because it streams through perfectly "straight" lines of "stable" basic space metric volumes. That factor means that the universal kinetic energy "pressure" doesn't affect at all the universes topology, but only affects the space production (expansion). Here again, science has to separate Time from space to understand the "facts".

So we can conclude that the overall universe possesses a "flat" topology "time wise" just as much as "space wise."

This assessment is another information that we can accept as a "fact", without losing time in different illogical possibilities suggested mathematically. Personally, I always keep in mind that a bag never can contain minus two apples; that is an impossibility in what is called: the **reality**.

And the universe is the present **reality** of an evolving possibility to attain the manifestation of its full potentiality.

— Excuse me, sir; I don't want to keep you here needlessly, but do you have a simple explanation to the accumulation of kinetic energy during Planck's epoch? It doesn't seem indisputable to me.

— Ok, Helen; this will be the climax of our analysis, since everything we've seen afterward depends on it.

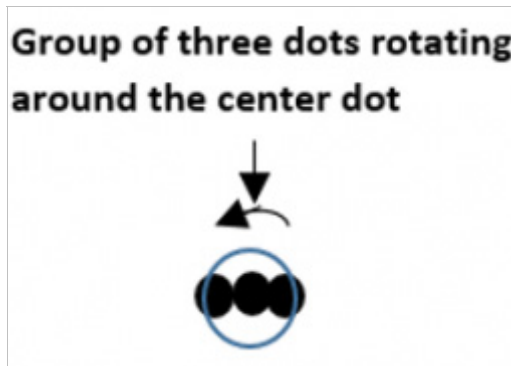


## Chapter 29

# Accumulation of energy by rotation

So how can a circular motion, to which is applied constant energy, acquire constant acceleration?

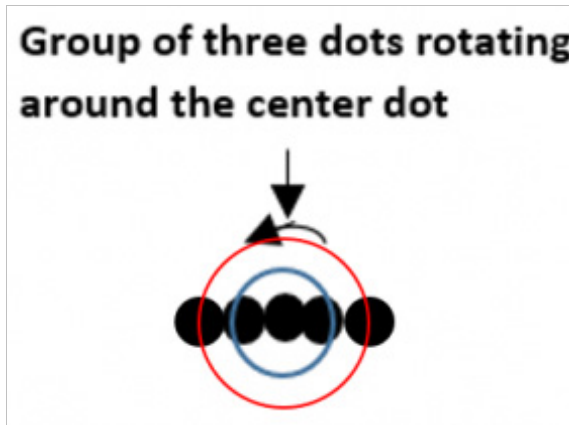
Let's make a drawing:



- 1-The full rotation is made in one second.
- 2-The distance covered is the blue circle.
- 3-The centrifugal effect makes appear two more dots because of constant energy applied (here, after two rotations).



This drawing is the result:



We can easily see that the distance covered by the two new dots is far greater than the distance covered by the previous dots, and they had to travel it in the same lap of time (a second); which means that they had to go at a significant faster speed.

The cause is that **constant** kinetic energy is applied at the center, and the surface consistently stretches and lengthens the circumference, because of centrifugal effect. So the speed to travel it constantly amplifies, and gradually adds to the kinetic energy of the line formed by the dots.

When the line is ripped in two parts, there will be an amount of kinetic energy that will have been accumulated in the process, which will end. Does that explain the event clearly enough, Helen?

— It sure does; thank you, sir.

— I think we all have earned a vacation from physics and astrophysics for a while; at least, I have. So let me be grateful to you for your attention and your cooperation. It's nice to have debated with you all.

Thank you.

André Lefebvre

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# The birth and the life of our universe

**I**n this book, you will find the story of the universe start, not from today like science describes it, but from its beginning according to the Big bang theory; which will become an indisputable “fact” after reading this book.

Surprisingly, with this approach, the overall history of the universe becomes a lot simpler to understand. The reason is rather simple: quite a bit of illogic “imagined solutions” such as dark matter and dark energy, merely disappear by themselves.

The first improvement given to the story is caused by the fact that we have to provide much more importance to the “space” factor than to “matter”; which is the contrary of what is done in science. The reality is, and everybody will agree, that there’s a lot more “space” in the Universe than there is “matter.”

The second improvement is that, even if we live in a “space-time” universe, we have to accept that “space” is not equivalent to Time and that both, very logically, weren’t “born” at the same moment. Which means that you will find in this book the exact date of the Big bang which cannot be at Time = Zero.

Thus you will discover the real “relation” between Time and Space; which becomes unquestionable during the exposure of the universe’s evolution.

In conclusion, you might find astonishing that the upcoming of the universe is not that difficult to understand, even when you start with “nothing.”



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