

Waiting for the Higgs boson
or
a hypothesis for doing without dark matter



THE ESSENCE OF THE HYPOTHESIS

Living beings are made of atoms, and we know that atoms were created at a stage in the evolution of the universe when living beings did not yet exist. Atoms are therefore still present inside living beings, but what's more, they continue to live their life as atoms, with their own way of functioning and with their own properties. In the same way, the stage of the universe that preceded the birth of atoms would still exist, and it would still function inside atoms in the same way it did before atoms existed, just as atoms function within us in the same way they did before living beings appeared.

According to this hypothesis, the pre-atomic universe would not be the frightening pre-Big-Bang world we are usually presented with, i.e. a universe subjected to unheard-of conditions of density and heat. This earlier universe would still be living inside us, in the atoms that constitutes us, and under the conditions of temperature and pressure that are usually those of the atoms that constitutes us.

We will attempt to describe this pre-atomic universe, and to guess how it might have functioned to have generated, through its inevitable evolution, the universe of atoms and radiation.

This summary only gives the main premises and conclusions of our hypothesis. [*Its full text is in French.*](#)

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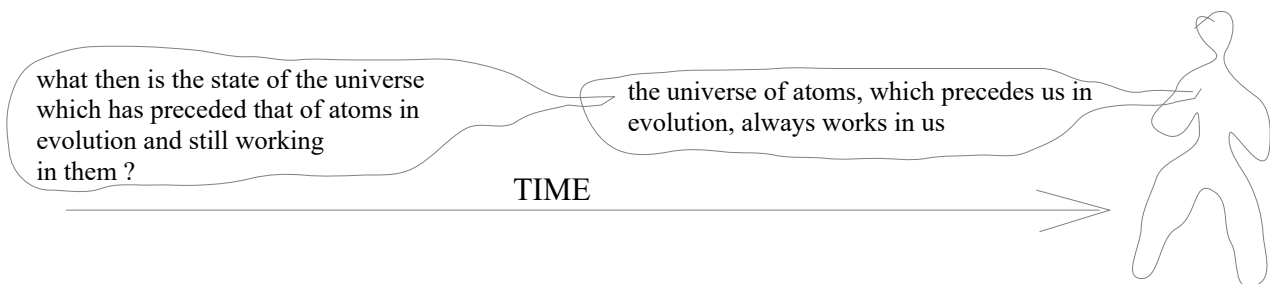
1- the successive stages of the universe persist, and they fit into one another, with the oldest functioning unchanged within the most recent:

The proposed hypothesis assumes that the universe evolves by becoming more complex in successive steps, with the product of each steps not disappearing with it but remaining in subsequent steps where it continues to function in the same way as it did in the step that generated it.

This is a very simple and general principle, and there's nothing extraordinary or innovative about it.

As living beings, each of us is made of atoms, and we know that atoms were created at a stage in the evolution of the universe when living beings did not yet exist. Although the stage of the universe that saw the birth of atoms has long since passed, atoms are still present in the age of living beings. And not only are they still there but they continue to live their atomic life, with their own way of functioning, and with their own chemical and electromagnetic properties. Properties that are specific to atoms and have nothing to do with those that govern the specific functioning of living beings: sexual reproduction, digestion, respiration, the evolution of species, and so on.

The basic idea is that, just as atoms still exist and function in their own way when incorporated into living beings that appeared at a later stage in the evolution of the universe, the stage of the universe that preceded atoms still exists and functions within atoms. And it would still function there in the same way it functioned before atoms existed, just as atoms function within us in the same way they functioned before living beings appeared.



According to this hypothesis, the pre-atomic universe would not be the frightening pre-Big-Bang world we're usually presented with, i.e. a universe subject to unheard-of conditions of density and heat that we could only strive to recreate very partially in particle accelerators. This earlier universe would still be living within us, inside the atoms that constitutes us, and in the temperature and pressure conditions that are usually those of the atoms that constitutes us.

But what would this pre-atomic universe look like, and how would it function?

2- “Empty” space would be structured by the pulsation of concentric twin waves, constantly intersecting and bouncing off similar waves:

Since this stage of the universe existed before the atoms that make up matter existed, we can't hope to see it, even with high-performance instruments, since by definition it's not “material”, i.e. it's not made of any material in the sense we use the term.

We can only make propositions about how this universe was organized and functioned, and then try to show that this mode of functioning correctly explains the properties of the physical world we know, notably the existence of the various atoms described in Mendeleev's table, their subjection to the effects of gravity and electromagnetism, the way they assemble to build molecules, and all the particularities of the quantum behavior of matter and radiation.

Basically, the proposed hypothesis is that space is structured by stationary spherical waves, endlessly bouncing off one another at the speed of light, and pulsating back and forth at the same rate throughout the universe.

Nothing else.

Nothing else will be useful in reconstructing the present universe on the basis of this hypothesis. The birth and properties of atoms and radiation will follow logically from this single ingredient.

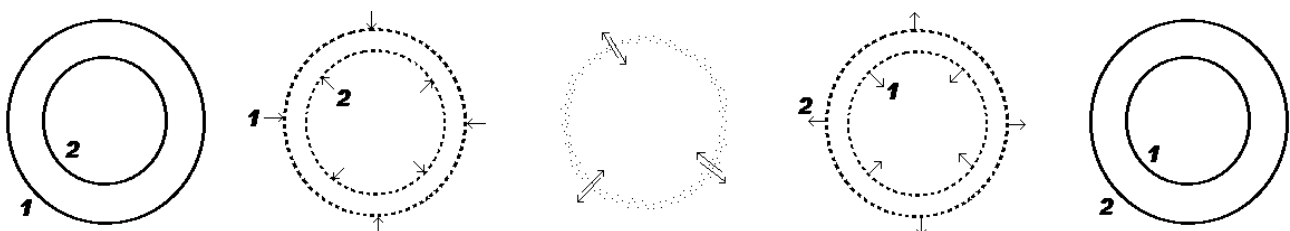
We'll call these waves space waves, and we won't wonder what matter they're made of or what they pulsate in, since, as we've just said, they're made of no matter and pulsate in no matter. However, since they are not made of nothing and do not pulsate in nothing, and since we have assumed, at least, that they exist, to describe their nature in a very abstract way we will say that they are waves of existence pulsating in non-existence.

To call them stationary here is not to say that these waves don't move, but only that they always return to the same place, and it is assumed that their journey consists solely of a perpetual to-and-fro between two mutually concentric extreme positions.

Furthermore, we assume that each wave does not pulse alone between its two extreme concentric positions, but that it shares the same location and back and forth path with a twin wave that performs the same pulsation in complete phase shift: when one expands the other contracts, and vice versa.

How do these twin waves manage to cross each other?

In fact, we shouldn't think of them as being made up of a continuous substance, but rather of a dust of "places of existence" as their substance has been described. This dust would gradually agglomerate during the second half of the expansion or contraction phase, then bounce off its reconstituted neighbors at exactly the same moment, and gradually disintegrate as soon as it begins to bounce off. Halfway through its course, it would be completely dislocated, precisely at the moment of crossing its twin wave which would then be dislocated in the same way. Immediately after crossing the two waves would begin to re-group their scattered substance, and they would rebuild themselves again just in time to bounce off the neighbouring waves, also rebuilt at the same instant.



The principle of the dislocation and gradual recomposition of twin space waves, allowing them to cross each other and bounce off similar neighbouring waves

This wave crossover means that, as soon as each wave is reconstructed it will always find a neighboring wave to bump up against it over its entire surface, allowing it to bounce back perfectly evenly over its entire periphery: at the end of its expansion (as in the case of wave 1 in the sketch below), it bounces off neighboring waves that are expanding in phase with it (also marked 1), but also, and across its entire surface, off waves that are a notch larger, and which are then just at the moment of their maximum contraction (as in the case of waves marked 2). At the end of contraction, the roles are reversed.

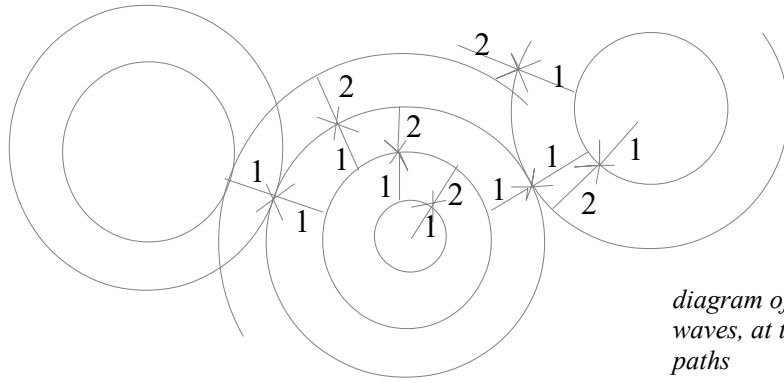
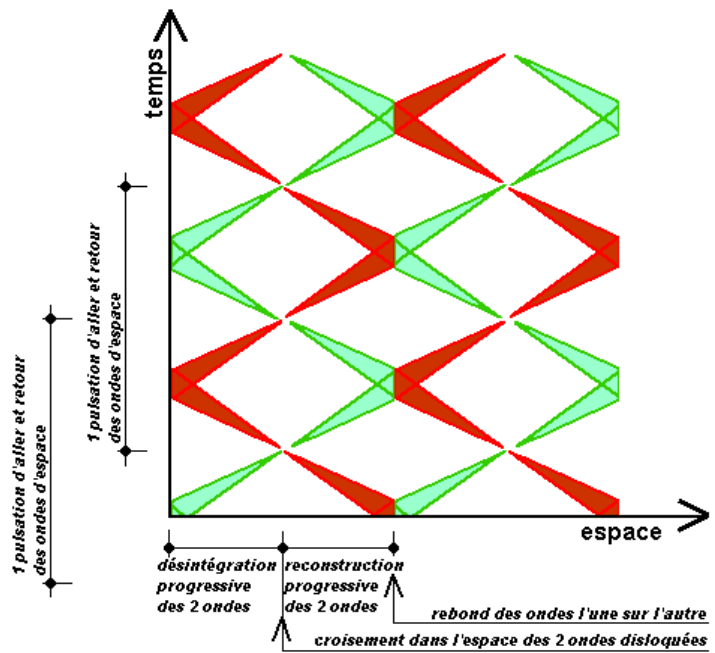


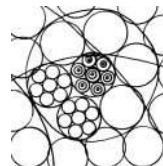
diagram of the mutual rebound of the twin waves, at the 2 ends of their perpetual to-and-fro paths

diagram of the principle of crossing in space and bounce off each other of two series of waves, one shown in red and the other in light green



All these twin spherical waves, pulsing into each other, are thus organized into wave trains nested in each other in pairs, structuring the pulsation of space at the finest scale of its functioning. Finally, we assume that these wave trains, nested in pairs, organize themselves in turn to fit into a hierarchical structure that ultimately occupies all scales of the universe.

Diagram of the hierarchy of concentric standing waves, endlessly bouncing off one another on each other, which we assume to fill all scales of the universe prior to the formation of matter.



To keep the image legible, except in the center we have not represented all the interlocking waves, only those corresponding to the scale hierarchy

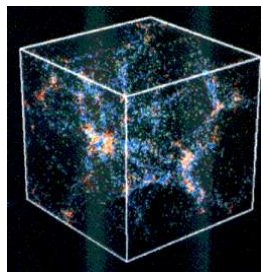
3- Matter would only be the self-organization of defects that wrinkle the poorly synchronized space waves on the large scales of the universe:

There you have it, we have described everything that we just need to imagine about the previous state of functioning of the universe to see it now transform and generate matter, because, in the same way that atoms are the result of an ancient stage of the universe that still functions within more recent living matter, so the endless pulsation of twin space standing waves would be the even more ancient functioning of the universe that still functions within atoms, explaining both their birth and the nature of their properties.

In the immense universe, then, we imagine a period during which space waves pulsate quietly, regularly, and all in perfect synchrony. Nothing else happens in these places. We can only say: it's a vacuum.

However, on the borders of the enormous bubbles occupied by this absolutely evenly pulsating vacuum, some waves fail to reach this state of perfect synchronization. So, because of their difficulty in finding the right cadence, in bouncing at the right rhythm off their neighbors, these waves distort each other somewhat, they crease each other somewhat. These local defects in synchronization are the only circumstance that must be assumed for space waves, as described above, to ultimately generate matter.

So, where are these synchronically faulty boundaries that are supposed to surround large bubbles of vacuum inside which nothing happens? Well, they are, quite simply, quite normally and quite precisely, the places in the universe where matter is found today. That is, in the places now occupied by the gigantic walls and sheets of galaxies that structure our present-day universe. And if galaxies are found there, on the periphery of the great empty bubbles that occupy most of the universe, it's quite simply because that's where the conditions that gave rise to matter existed.



This simulation models the distribution of galaxies in a cube 260 million light-years on a side. The distribution of galaxies suggests a sponge-like structure, with a concentration on walls or partitions encompassing vast empty spaces. The walls of these empty bubbles would, in our hypothesis, be the largest scale on which the perfect synchronization of space waves could be found.

[Sciences et Avenir" document]

Unlike the usual theory, which assumes that the great structures of the present-day universe are the result of the forces that animate matter, notably gravity, and this despite the flagrant impossibility that known matter had enough time to generate these structures, the hypothesis presented here simply assumes that these structures pre-existed the existence of matter, which only came into being where the conditions for its birth existed.

But how can it be that matter is born from the fact that, in certain places, space waves are poorly synchronized in their mutual bouncing off one another, and because this will have the effect of wrinkling them?

It is assumed that the initial cause is that, when affected by a fold, space waves spontaneously tend to regain their perfect spherical shape at their next vibration, which they can only do by expelling this fold towards any wave in their vicinity, which in turn will get rid of it at the next vibration by passing it back to any of its own neighbors. Thus, the folds of space waves cannot remain in place, and, necessarily, they circulate at the speed at which the waves vibrate, the speed we assume to be that of light. Or, rather, the speed that light would later adopt, for, at that time of the universe, there was still no more light radiation than no matter.

The pulsations of two spherical twin waves moving back and forth within each other, the vibrations of incessant back-and-forth motion at the speed of light, eventual wrinkling caused by synchronization errors and evacuated at the speed of light - these are the properties we must assume for stationary space waves.

To these properties, we can also add the essential one that they operate at a constant surface.

4- Gravity would result from the property of space waves of maintaining a constant surface, from which it follows that a gravitational effect can manifest itself even in the absence of matter, as long as the space waves are folded:

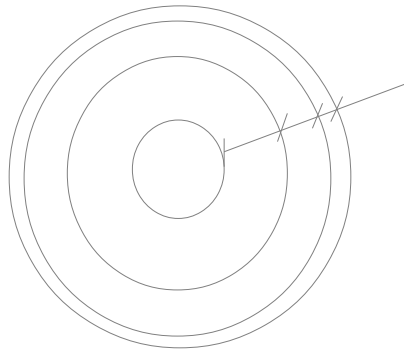
The property of space waves of maintaining a constant surface area is, in fact, essential, for if a wave is folded but maintains a constant surface area, it is obliged to contract its overall volume.



to maintain a constant surface area when deformed, a spherical shape must necessarily contract the overall volume it occupies

Quite simply, this would be the cause of the gravity effect: the folds of deformation that space waves undergo force them to curl up, and this occurs in a geometric circumstance that implies that the smaller the wave, the more the same deformation will shrink its diameter. So, when there's a source of space-wave deformation somewhere, the average distance separating two successive waves will be greater the closer you are to the source, and space will be curled up on itself all the more the closer you are to the source.

Space that vibrates at a constant rate, i.e. spacetime, is thus hollowed out by the deformations that affect it, and, since the hollowing caused by any source is all the stronger the closer we are to it, we are dealing here with an acceleration effect.



the cause of gravitational acceleration: the folds of the waves generate a reduction in volume of the same order of magnitude for all the waves, which distances them further apart the smaller their size, since the more this similar reduction in volume is relative to a smaller wave surface the more it consequently implies a thickness important between two successive waves. During the same duration of time, the same number of beats will therefore cover a space that is greater the closer we are to the cause which generates the gravity effect

When matter will cause these space-wave deformations, it will be matter that deforms spacetime, generating a well of acceleration towards it. But space waves don't need matter to be folded, since they were folded even before matter existed.

So there's no point in looking for the strange “dark matter” that causes the 95% of gravity we observe and which matter apparently isn't abundant enough to generate: there's no matter in these places, of any kind, even of an unknown and highly exotic type, there are only waves that are distorted by defects in their synchronization. And if it's in, or in the vicinity of matter-filled galaxies that these “causeless” gravity effects manifest themselves, we shouldn't be surprised since it's precisely the organization of some of these wave folds that has turned them into matter. Quite simply, therefore, matter is wherever there is an abundance of that which serves to make matter.

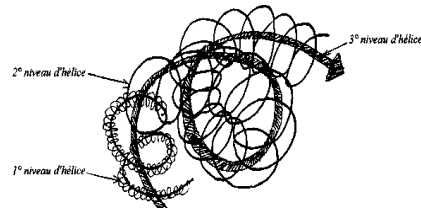
This brings us to the making of matter.

5- the folds of space waves are transformed into matter particles:

The hypothesis is that matter particles, and radiations also, are nothing more than organized groupings of the folds that distort space waves.

In the context of this summary presentation it is not possible to detail the successive stages leading to the progressive organization of these folds into particles of matter or radiation. Suffice it to say that, at a certain stage in its development, this organization took the form of folds grouped together in a helix of helices on a significant number of levels. In other words, it has taken the form of a helix which is itself wound into a helix, which is itself wound into a helix, which is also wound into a helix, and so on. It's the same configuration, incidentally, for DNA, which is not only a double helix, but also a helix itself wound into a helix.

*schematic diagram of a helix
wound in a helix on an infinite number
of levels of helix in helix of helix*



The smallest piece of helix in a helix in a helix capable of holding together without unravelling would be a neutrino.

Overall, we can imagine a neutrino as a thin, long rod whose internal structure is therefore made of a helix in a helix in a helix. There would be several possible densities for the curling up of these helices, resulting in different kinds of neutrino, which could mutate into each other by loosening up or curling up further. The most common species are the so-called electron neutrinos, the only ones considered here.

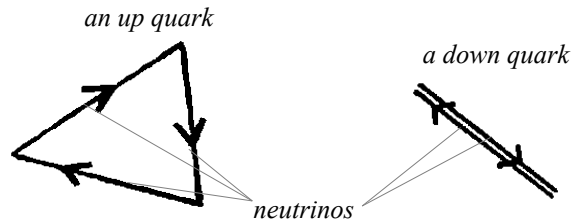
Naturally, neutrinos travel at the speed of light since they are made up of kinks in space waves which space waves get rid of by sending them to their neighbors at the speed of light.

*schematic representation
of a neutrino*



Neutrinos, while traveling at the speed of light, can rotate one behind the other in closed loops. A loop of three electron neutrinos would be an up quark, and a loop of two electron neutrinos head to tail would be a down quark.

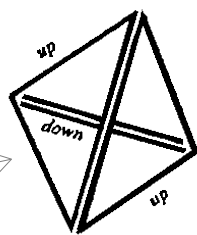
*neutrinos assemble
in closed loops,
by 3 (up quarks)
or by 2 (down quarks)*



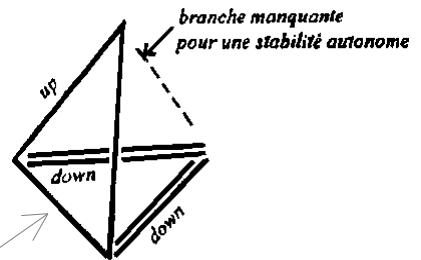
Two up quarks and a down quark are enough to build a stable, spatially indeformable figure: a tetrahedron. This would be a proton. Two down quarks and an up quark are also enough to make a tetrahedron, but it lacks a branch to be stable. This would be a neutron, which is indeed unstable on its own, but perfectly stable when attached to, and therefore supported on all sides by the branches of a proton.

A neutron thus mounted in a proton would be a heavy hydrogen nucleus (deuterium), and a proton on its own would be a light hydrogen nucleus, the most common isotope of hydrogen.

*a proton, made up
of 2 up quarks and
1 down quark*



*a neutron, made up
of 2 down quarks
and 1 up quark*



6- Matter as an accumulation of energy and as a gravity well:

Basically, a particle of matter, such as a proton, would therefore be a knot of kinked space-wave deformations that space waves can't get rid of. Individually, each fold contained in one of the neutrinos of a proton or of a neutron is evacuated by the space waves at the speed of light, but, as these deformations rotate globally in a closed loop, they return to them just as dryly and at the same speed.

A particle of matter can therefore be said to gather, in closed loops, the energy that enables its neutrinos to travel at the speed "c" of light.

Like all neutrinos, those in a matter particle travel at the speed c in relation to the waves they distort, which evacuate them at the same speed in order to get rid of them. In addition, these waves are said to be stationary overall but vibrate at speed c during their alternating expansion and contraction movements. Moving at speed c relative to waves that are themselves moving at speed c , the neutrinos that make up a matter particle are therefore moving at relative speed c^2 . Consequently, in terms of energy, a matter particle is nothing more than c^2 accumulated and assigned to the same place, since it keeps going round and round in circles.

The more matter there is, whose quantity can be designated by the term m , the more locally accumulated c^2 there will be. If we express this in terms of the energy contained in a particle of matter, we can say: $E = mc^2$.

This doesn't mean, as it's usually presented since Einstein, that the mass of a particle is a concrete physical reality that can be transformed into energy in the proportion c^2 , but it does mean that the energy accumulated in matter is nothing else than the speed of light squared trapped in a closed loop, and that the mass of a material doesn't exist but is merely a number, a quantity that can be used in calculations to say how much capacity to travel at the speed of light relative to the speed of light this material has accumulated within it.

Necessarily, a neutrino's path will be deviated if it crosses a zone where the space waves carrying it are hollowed by a gravity effect caused by deformations affecting these waves, as we saw earlier (chapter 4). Since a matter particle is made up of neutrinos, it too will be deflected towards any source of gravity. And conversely, since a matter particle is nothing more than a twisted deformation of space waves, it will generate a gravity effect towards itself.

In short, a matter particle causes a gravity effect towards itself, and is itself accelerated towards any gravity well, including the gravity well formed by any other matter.

7- brief remarks on photons :

Light photons will not be discussed in this summary, except to say that they correspond to spontaneous gatherings of space-wave folds and therefore lack the coherent and complex-to-acquire structure of a neutrino. Like them, however, they are gatherings of space-wave folds that space waves get rid of ... at the speed of light.

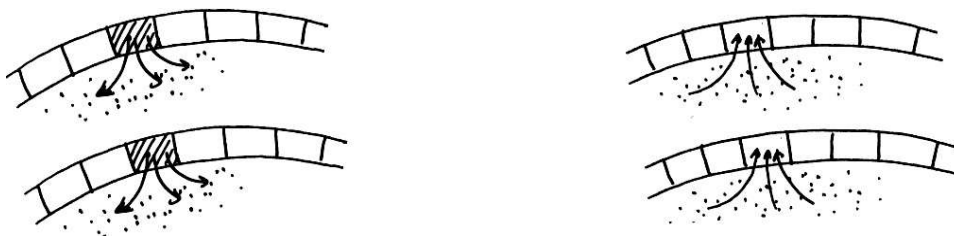
Like neutrinos, they will be deflected by the gravity wells affecting space waves, but, unlike them, because they don't stay spinning in circles, they don't generate towards themselves a gravitational deformation well large enough for it to be perceptible to us.

Since it's not "the source that emits the light" that makes the photons travel but rather the pulsations of the space waves that expel them at the speed of their pulsation, that of light, the photons necessarily always travel at the same speed of light whatever the relative speed of the source that emits them. This corresponds, of course, to the principle of special relativity established by Einstein.

8- The cause of the proton's electric charge:

Since a proton is a collection of deformations, it pulls on the space waves it deforms by its presence. We now hypothesize that the loop of deformations going round and round in a proton deforms the space waves so much that it manages, with each vibration, to tear off a piece of their surface. We say that these are "quanta" of their surface, and we also hypothesize that the space waves take advantage of the following time of their pulsation to recover these quanta and re-establish their normal surface.

This pulsation - one time, the proton pulls so hard that it breaks quanta of surfaces on all the space waves concentric with it, the other time, the space waves recover this same surface - would correspond to the functioning of what is usually called the proton's electric charge.



*the two pulsation times of space waves deformed by a positive charge:
at one stage, the proton tears off one or more surface quanta from each of the waves it influences, dispersing the grains of the substance from which they are made (left-hand sketch); at the other stage, each wave reconstitutes these same quanta and returns to its normal surface (right-hand sketch).*

In the sketches above, quanta of surface are dispersed on the inner side of the waves, but they can also be dispersed on the other side.

Above all, it's important to bear in mind that this loss of surface can just as easily occur when waves contract as when they expand, since a surface can just as easily be torn apart by forcing it to contract too much as by forcing it to stretch too much. This is an important point since it implies that, once we've assumed that space waves take advantage of the time following their pulsation to recover their torn-off surface, it's not the same protons that tear off surface quanta from space waves during their contraction phase as those that tear them off during their expansion phase. We shall now see that this corresponds to the notion of spin.

9- on the pulsating nature of matter, and on the notion of spin :

In chapter 2, we presented the twin space waves as made up of dust of existence, constantly alternating between a time of complete dispersion, allowing them to cross each other, and a time of very dense agglomeration, allowing them to bounce off each other at the end of this periodic reconstitution.

Of course, since matter particles are only deformations of these space waves, they can't remain compact while the waves that carry them dislocate to cross each other. To this inevitable relationship between matter and the waves it deforms, we must, however, combine a new hypothesis: that space waves are sufficiently solid not to accept being permanently deformed by the presence of matter particles.

Of course, as we've seen, they can't get rid of them, as these deformations have found a way of organizing themselves to circulate in closed loops, but we must assume that the space waves have adapted to this constraint by imposing on the matter particles a rhythm of dislocation and reconstruction that is twice as slow as the rhythm of their own pulsation, allowing them, every other time, to recover their optimal, undistorted shape, and this without any loss of surface if the matter is in a position to extract quanta from them. During this recovery time, the particles of matter they carry are as if "absent", since they have not yet finished reconstituting their organization and their effects are therefore dormant.

This pulsating rhythm of matter, only reconstituted every other beat from the pulsation of space waves, necessarily combines with the fact that waves operate in twin wave pairs, some of which contract while others expand. So, in order to distribute the deformations evenly and to ensure that they are all completely free of deformations every other beat of their pulsation, one half of the space waves will take on deformations that it will only reconstitute during its contraction time, and the other half will take on deformations that it will only reconstitute during its expansion time.

Since no matter particle, any more than the waves it deforms, can be in its entirety both expanding and contracting, this implies that it can only stably deform a single series of waves, a single train of waves, which leads us to divide matter particles into two types: those that reconstitute themselves at the moment of contraction of the waves they deform, and those that reconstitute themselves at the moment of expansion of the waves they deform.

Consequently, there's nothing to prevent a particle from occupying exactly the same position in space as another particle, on the sole condition that it distorts its twin waves. In such circumstances, the two particles will be nested within each other, just as the space waves that carry them are nested within each other, and one will be in its expansion phase when the other is in its contraction phase. It is assumed that this superposition of two particles in phase opposition corresponds to the notion of spin.

From this point of view, the set of space waves contracting at the same time carries the matter particles said to be of spin $- \frac{1}{2}$, and the set of space waves in their expansion phase at the same time carries the matter particles said to be of spin $+ \frac{1}{2}$. Conversely, this definition of spin implies that, depending on its spin, a particle deforms either space waves that are contracting, or waves that are expanding as they reconstitute.

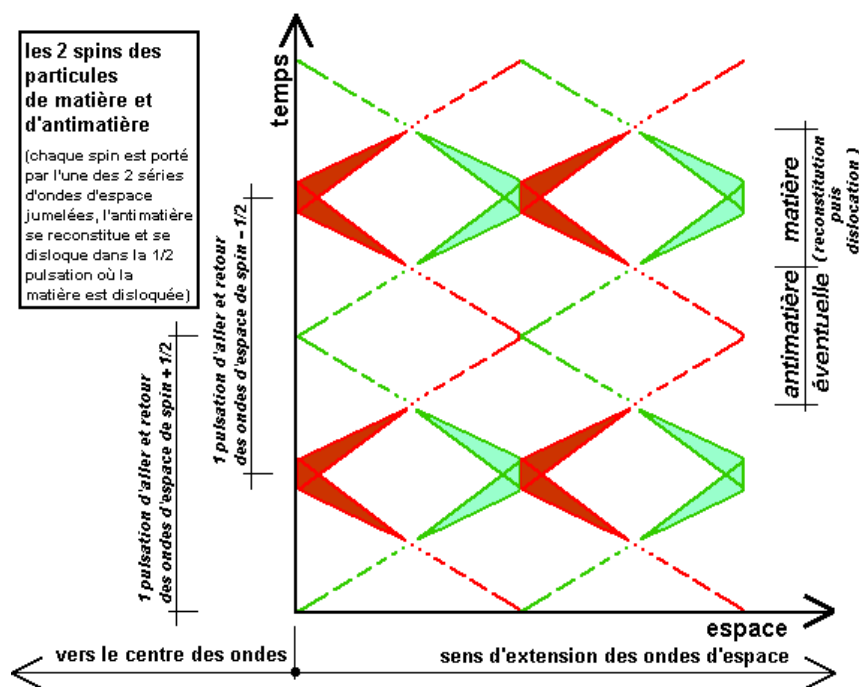
In short, a complete cycle of space-wave pulsation can be described as follows:

- in the first quarter of their pulsation, the twin space waves gradually break up. In so doing, they inevitably dislocate the particles they carry and which deform them;
- halfway along, in their completely dislocated state, the expanding waves cross paths with the contracting ones. In the process, the particles they carry also cross each other;
- in the second quarter of their pulse, the space waves gradually reconstitute themselves,

while deepening the dislocation of the matter particles they carry. This allows them to quietly reconstitute their optimal shape, undisturbed by the deformations caused by matter. In particular, if they have been deformed by charged particles, this allows them to recover their normal amount of surface area since electric charges are neutralized for as long as the particles generating them are dislocated (Note: we have seen that positive electric charges cause them to lose quanta of surface. Later, when we discuss electrons, we'll see that negative electric charges, conversely, add quanta to them);

- at the end of their course, the space waves, now perfectly reconstituted and free from any modification or deformation of their surface, bounce off one another;
- after bouncing back, the twin waves exchange functions with those that were expanding now beginning to contract, and vice versa. At the same time, each wave re-engages in a process of self-dislocation. During this process, a redistribution of the dislocated pieces begins to prepare the reconstitution of the matter particles carried by the waves;
- halfway through, and completely dislocated, the twin waves cross again. The particles they carry also cross at the same time;
- in the last quarter of their pulsation, the space waves reconstitute themselves and, at the same time, the matter particles that deform them. At the end of their course, this time deformed by the matter particles and any electrical charges they may carry, the series of twin waves bounce off each other once again, and a new cycle begins.

Which can be schematized as follows, the “matter-free” pulsation time of the space waves is occupied by the possible presence of antimatter, a concept we'll discuss in the next chapter.



10- on the notion of antimatter:

In the context of the hypothesis we have presented, what might be the status of antimatter?

Observations have shown that a particle and its antiparticle have opposite electric charges but the same spin. We haven't yet examined negative electric charges, but we've just proposed an explanation for the notion of spin.

If a particle and its antiparticle have the same spin, in our hypothesis, this means that the fold organizations that constitute them distort the same wave trains. As shown in the sketch given at the end of the previous chapter 9, we assume that the antiparticle is reconstituted by the space waves at the period of their pulsation during which the particle is still dislocated, while, conversely, it remains dislocated at the period during which the particle is reformed by the space waves that carry it.

Since space waves dislocate and reform twice as often as matter particles, and since we can assume that they also do so twice as often as antimatter particles, the overall situation is such that, if the matter particle reconstructs itself during the contraction time of space waves, its antiparticle will reconstruct itself during the expansion time of these same waves. And vice versa, if a particle and an antiparticle share the opposite spin.

Based on the sketch at the end of the previous chapter 9, to illustrate the cycle of dislocation and reconstruction of antimatter particles simply imagine that the shapes in > and < representing the main moments of dislocation and reconstruction of matter particles are shifted up or down one notch, to occupy the place of the dashed diagonals corresponding to the complementary phases of the space-wave pulsation.

In the hypothesis we've just made, antimatter particles are therefore built in the time that space waves normally use to recover from the presence of matter particles that distort them, which is enough to explain why matter particles and antimatter particles don't get along, why they destroy each other when they come into contact: for space waves, it's too much! Lacking the pulse feedback they need to recover from the deformations inflicted on them by the particles or antiparticles they carry, they momentarily collapse, dispersing all the organization of deformations they carried in the form of matter and antimatter particles. This organization is then sufficiently dislocated that it can no longer be reconstituted into particles, but it still remains sufficiently coherent to be dispersed in the form of energy.

11- the electron and negative electric charge:

As we've seen, a neutron doesn't have a stable shape, so it can't pull on space waves hard enough to tear off a quantum of surface. For this reason, a neutron, as its name suggests, is electrically neutral. When it's alone, however, it doesn't collapse, because the mutual reactions between the neutrinos it contains help it to hold on in space, and even lead to the accumulation of new deformations in their circuit, until a new neutrino is formed that transforms one of the down quarks into a up quark, thus turning the neutron into a proton. This mutation, which takes place in around a quarter of an hour, is known as "beta minus" decay.

In addition to the formation of a proton, this spontaneous mutation leads to the formation of an antineutrino and an electron. These two products will be considered in turn.

As can be seen from the notion of antimatter considered in the previous chapter, the creation of the antineutrino corresponds to the fact that, throughout its formation, the new neutrino was accompanied by a symmetrical structure that built itself up at the same rate as it did, but with an offset pulse time: each time the neutrino structure rebuilt itself a little stronger than at the previous pulse, the antineutrino in formation was “put to sleep”, completely undone by the space waves. Symmetrically, each time the neutrino under construction was in its “dormant”, deconstructed phase, the antineutrino was rebuilt, each time a little more consistent than at the previous pulse.

This is because the energy needed to form the new neutrino can't come from anything, and the organization of deformations that corresponds to it must be compensated, at all times, by an organization of deformations that are exactly the opposite, i.e. twisting the same waves but in exactly the symmetric direction so that the deformation resulting from the neutrino's mutation is globally zero.

This happens quite simply and very inevitably: every other time, the pulsation of the space waves reconstitutes the neutrino under construction, which is then enriched by a few folds of deformation that pass through it, adding them to its organization, and the particle it forms becomes a little bigger still. Each time they reconstitute the neutrino in formation, the space waves must therefore withstand a surfeit of organized deformation, which forces them, on the return of each of their pulses, to “untwist” by twisting in exactly the opposite direction, implying that the organizing force accumulated by the neutrino in formation will necessarily be found in the inverse deformation generated each time by the space waves to untwist a little more, and which will also accumulate an increasingly strong organizing force.

Necessarily, since they are staggered in time, one of these two symmetrical constructions will end some time before the other. Since it's its construction that drives the dance, it's the neutrino that ends first. As soon as it's ripe, it joins the closed cycle of circulating deformations that make up the neutron, immediately transforming it into a proton.

The other construction, on the other hand, is left stranded. It pulses in time with a pulse symmetrical to that of the neutrino: this is the antineutrino, which doesn't have time to complete itself before being abandoned to its fate, which implies that it hasn't had time to acquire a sufficiently solid structure to hold together without unravelling as it vibrates on space waves. It then leaves the scene, flying straight ahead at the speed of light. After a while, it will unravel on its own, dispersing the deformations it contains which are insufficiently organized to remain compactly grouped under the vibrations of the space waves that tend to dislocate them.

In the same way, we know that every particle of matter that is created generates its antiparticle at the moment of its creation, and scientists wonder how it is that every creation of matter is doubled by a symmetrical creation of antimatter and yet antimatter seems to magically evaporate from the universe. In our hypothesis, we don't have to wonder why the universe isn't made up of as much antimatter as matter: any antimatter particle would lack a space-wave pulse to accumulate enough deformations to be definitively stable. Consequently, any antimatter particle is simply destined to “die of old age” on its own.

But this brings us back to our antineutrino in the process of formation, whose congenital energy deficit will presumably be further aggravated by a levy it will have to undergo before it has even had time to move away.

For indeed the mechanism of beta radioactivity has yet to be fully analyzed. At the same time as the neutron mutates into a proton, an antineutrino and an electron are formed: we've just explained the antineutrino, now we need to explain the electron.

The initial neutron was not stable, which was precisely the cause of its mutation, and, since it was not very solid in itself, it did not have the capacity to excessively annoy space waves. Unlike a proton which extracts surface quanta from space waves, it did not generate pulses of electrical distortion of these waves, which is why it was given the name "neutron".

As long as it is still in neutron form, the atomic nucleus is therefore well supported by space waves, whereas, as soon as it has completed its mutation, the new proton begins to deform them excessively by tearing off pieces of their surface, a tearing-off which we have said corresponds to the effect of positive electricity. At the same time as the neutrino was being built up and finally incorporated into the proton, an antineutrino was being built up on the opposite vibrational slope, deforming the same waves in the opposite direction. Disturbed by the deformations it causes, the space waves will get rid of this antineutrino by passing it on to the waves in their vicinity, but, since they are more disturbed by the presence of the new proton, which tears off a piece of their surface with each vibration, they will not get rid of the antineutrino completely but will accept the presence of a fraction of this particle. In this case, the fraction that causes the space waves to deform in such a way as to compensate exactly for the loss of surface area inflicted by the new proton. This organization of antimatter will therefore detach itself from the antineutrino before it can escape at the speed of light, folding up into a compact, autonomous ball, and will remain there, relieving the space waves of their loss of surface area by permanently imparting an extra surface area to them, corresponding to what is known as the negative electricity effect.



the two pulsation times of space waves deformed by a negative charge:

at one stage, the electron forces the grains of the substance from which the waves are made to assemble themselves in the form of quanta of surface, which are integrated into each of the waves it influences (sketch on left),

then, on the other stage, each wave disperses these quanta, which are, for it, supernumerary (right-hand sketch).

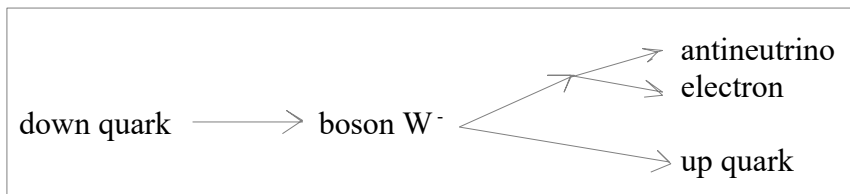
Depending on the electron's spin, the surface gain will take place during a wave expansion phase or during a wave contraction phase.

However, there's one more point to make: space waves won't reconstitute the piece of organization they've taken from the antineutrino in the time of the pulse when antimatter is reconstituted, because space waves need to use this periodic "free time" to rebuild their stability. They will keep this organization in abeyance for a while, without reconstituting it, and then they will do so at the next time of their pulsation, corresponding to the moment of the pulsation that reconstitutes matter. From a piece of antimatter, this piece of space-wave deformation organization, which deforms them in such a way as to periodically add surface area, has now become a perennial particle of matter, preserved by the space waves at the center of the proton, which periodically rips the same amount of surface area from them: the electron is born.

We can now make a global assessment of neutron beta decay, while recalling, in parallel, the usual interpretation given to it.

In our interpretation, there's no need to envisage an intermediate mediator particle, the W^- boson, but you can, if you like, call W^- boson the very fleeting provisional form taken by the new proton at the precise moment it emerges, and before it has pulled a little too hard on the space waves, tearing surface quanta from them. Above all, our interpretation takes full account of the fact that the antineutrino comes as an energetic compensation for a neutrino, and that the difference between a down quark and an up quark is indeed a neutrino, which is completely foreign to the usual interpretation of quarks.

It also points out that there is a significant energy difference between the neutrino and its antineutrino. This is partly due to the fact that the antineutrino has not had time to acquire sufficient energy to hold on to space waves without unravelling. Another part is due to the fact that the space waves took advantage of the antineutrino's intrinsic weakness, and also of its negative electric charge, to take some of its energy and build an electron. This electron is much smaller than the antineutrino from which it is taken, but it will hold on permanently, pulsing and constantly recreating the surface quanta that the proton will tear away from the space waves, relieving them of the inconvenience caused by the proton's presence.



above, the usual interpretation of neutron beta decay

below, the interpretation proposed within the framework of our hypothesis, the terms located one on top of the other are equivalent to each other:

(down quark + neutrino)	- antineutrino	+ slight difference in energy
= up quark	- antineutrino	+ electron

12- the electron at the center of the proton:

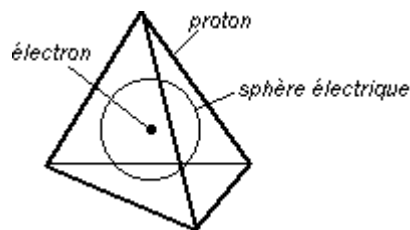
It has been assumed that the proton has a tetrahedral structure (chapter 5) and tends to shrink space waves by causing them to periodically lose quanta of surface.

Since the electron is a much smaller structure than the proton, as their respective masses reveal, and since it's from the center of the proton that the inverse swelling effect must originate, restoring the space waves to their normal surface, everything leads to the conclusion that the electron is at the center of the proton.

When an electron is at the center of a proton, space waves are at ease since this arrangement globally forms an electrically neutral particle that no longer distorts space waves. This arrangement is a hydrogen atom.

the simplest atom, light hydrogen.

consists of a proton with an electron at its center. Between the proton and the electron is the atom's "electric sphere", which is what we "see" when we observe atoms with an electron microscope. It corresponds to the wave located in the middle position, between those deformed by the positive electrical deformation imposed on space waves from the proton and those deformed by the negative electrical counter-deformation reflected by the electron. The length of each side of the proton's tetrahedron would be 182 pm (see chapter 14 on this electric sphere)



The idea of an electron orbiting the atom's nucleus, inherited from the movement of the planets around the earth, is no longer valid. Instead, we propose to imagine the electron at the center of a tetrahedral cage corresponding to the atom's proton.

The presence of the electron at the center of the atom does not contradict quantum theory. On the contrary, it is supported by quantum computation which concludes that the electron's statistically most probable position is precisely at the center of the atom. In fact, quantum theory envisages the electron as an "electronic cloud" of more or less frequent presence of the electron at the center of the cloud of the presence of the proton. In a similar way, we'll consider it here as a cloud of presence at the center of the tetrahedron corresponding to the zones of proton presence.

This, to be more precise, now leads us to consider the "statistical" aspect of the behavior of matter particles, along with their contradictory aspect of waves and corpuscles.

Representation of the electron probability at the center of the hydrogen atom

[\[http://fr.wikipedia.org/wiki/Image:HAtomOrbitals.png\]](http://fr.wikipedia.org/wiki/Image:HAtomOrbitals.png)



13- The statistical aspect of the behavior of matter particles - illuminated by the Couette-Taylor experiment:

The fact that matter particles behave like waves is perfectly normal in the context of our hypothesis since, as has been proposed, they are nothing more than the twisting of wave deformations. That they behave like corpuscles is also quite normal since they would be, as has also been proposed, twists of deformations that turn locally in circles around themselves.

The wave-corpuscle paradox therefore poses no problem here, and we'll even add another layer by pointing out that our hypothesis doesn't oblige us to conceive that matter particles are sometimes waves and sometimes particles depending on how we observe them, but that they are always and simultaneously waves and particles.

Quantum theorists claim that the quantum indeterminacy of particles, and in particular the fact that we can only consider their presence in one place rather than another from a statistical point of view, stems from their dual nature as wave and corpuscle: it is because a matter particle has the character of a wave that spreads out in space that we cannot envisage a well-defined point position for it in space.

This explanation doesn't seem convincing: a wave can have a crest, and we could define the position of a wave particle by the position of its crest, or simply by the position of its center of gravity.

In the context of our hypothesis, this indeterminism takes on a more fundamental and inescapable dimension.

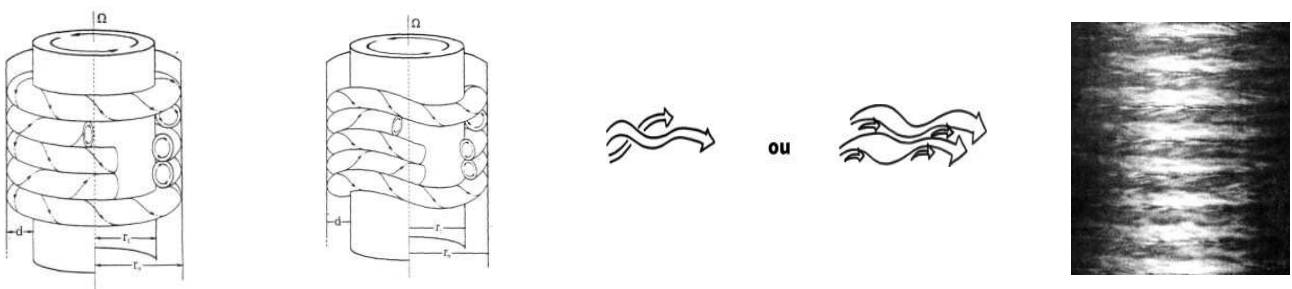
In fact, once a particle of matter has been created we can expect space waves to keep on triturating this particle with each of their vibrations in an attempt to dislocate it once and for all and send away the bundle of deformations it causes them. In doing so, they constantly knead and remix it, so that the particle of matter is subjected to deformations on itself that are quite similar to those undergone by a fluid when it is stretched and kneaded on itself. This is the case, for example, in the Couette-Taylor experiment in which a fluid is stretched and kneaded between two cylinders, one of which rotates within the other at high speed.

When the experiment begins, the fluid first deforms into horizontal rollers that rotate in pairs in opposite directions. The fluid particles then continuously follow the shape of these coiled vortices, each making a continuous spiral all around the apparatus (leftmost sketch, below).

When speed is increased, these rollers begin to undulate at a regular rate (next sketch).

At higher speeds, they now criss-cross, unless they appear and disappear intermittently, forming intricate, ever-changing interlacing patterns. In this case, they have lost most of their continuity, but still form the same configurations at regular intervals (see the next 2 sketches).

Finally, at even higher speeds, the fluid is completely shredded, its individual parts behaving in completely chaotic detail. However, if we consider them not individually but as a whole, we can see that this fluid, completely shredded into chaotically behaving parcels, statistically forms horizontal rollers identical to those that were rotating at the very start of the experiment. The difference is that at the start of the experiment they had a reality of continuous rollers whereas this continuity has now completely disappeared, replaced by a reality of purely and simply statistical rollers (photograph right).

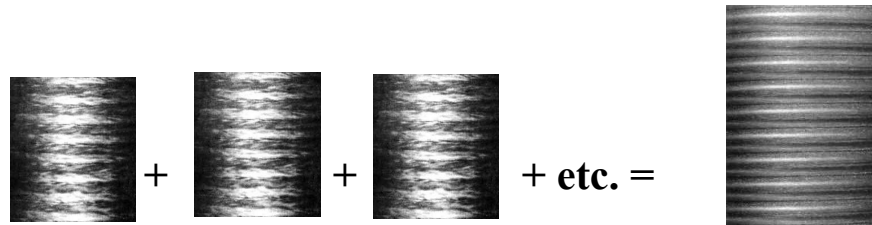


At the start of the Couette-Taylor experiment the fluid particles rotate in a regular spiral, generating horizontal rollers in pairs that rotate in opposite directions (sketch on left).

At higher speeds, the rollers begin to undulate periodically (next sketch).

At even higher speeds, they criss-cross or disappear and reappear in highly complex but almost periodically repeating patterns (the next two principle sketches).

At the end of the experiment (right-hand photograph), when the cylinder driving the liquid rotates at very high speed, the horizontal rollers reform and persist indefinitely. However, they are no longer generated, as they were at the beginning, by the regular rotation of the fluid in continuous spirals, but by the chaotic and as it were purely random movement of the fluid particles which move in all directions and occasionally pass from one roller to another. The perfect shape of the rollers can now only be obtained by superimposing photographs taken at various regular time intervals, which means that their shape now only has a statistical reality.



*[source for the first two drawings on the left, showing the still-continuous rollers:
Richard M. Lueptow's website (http://www.mech.northwestern.edu/fac/lueptow/TC_Rich_new.html)
source for the photograph of the chaotic phase:
http://omega.ilce.edu.mx:3000/sites/ciencia/volumen3/ciencia3/115/html/sec_8.htm]*

It is therefore assumed that space waves undergo the same kind of treatment on the deformational twists and turns that make up protons, neutrons and electrons. Consequently, we assume that the tetrahedron shape proposed for protons and neutrons has no continuous reality but is permanently dislocated into a dust cloud of infinitesimal folds that travel in all directions and in a completely chaotic fashion. Every other beat of the space-wave pulse, these clouds would reconstitute themselves in the form of the tetrahedrons we've been considering, but they would only reconstitute themselves in a vague and only statistically apprehensible way, exactly as is the case for the vague horizontal shape of the fluid rolls observed at the end of the Couette-Taylor experiment. We assume that the same applies to the electron, whose shape, before this statistical dispersion, probably resembles a small ball of deformations of helix in helix of helix twisted on themselves.

The purely statistical shape that must be attributed to the tetrahedral skeleton that makes up a proton, and that must be attributed to the little ball of folds that makes up the central electron of an atom.



14- the electric sphere of atoms:

It has been said that the proton in a hydrogen atom pulls on the space waves a little too strongly, to the point of tearing off quanta of surface from them every half beat of their pulsation. If an electron is present towards the center of the proton it acts in the opposite direction: it inflates the space waves beyond the normal motion of their pulsation, and in compensation it provides them with the same quanta of surface that the proton otherwise tears from them.

All these movements are those of spheres, since space waves are spherical. Between the surface-shrinking pulses of the waves sent by the proton's tetrahedron towards the atom's center and the swelling pulses of the waves returned by the central electron, a spherical boundary wave is located halfway up the atom's volume. Beyond this sphere, the wave-folding fog that constitutes the electron cannot venture, as the shrinking deformations sent by the proton are too violent. In turn, the wave-folding mist that constitutes the tetrahedral branches of the proton cannot penetrate this sphere, as the swelling deformations caused by the electron are too violent.

This sphere could be called the sphere of electrical neutrality, but, for simplicity's sake, we'll call it the electrical sphere of the atom (see sketch above, in chapter 12).

When we observe atoms with an electron microscope it's the waves bouncing off this sphere that we see, leading us to believe that atoms have spherical shapes. When an atom loses its electron and becomes an electrically positive cation-type ion, the contraction waves sent out by the proton can move closer to the center of the atom, causing its electric sphere to shrink. Conversely, if an extra electron manages to settle in the electric sphere of an atom, transforming it into an electrically negative anion, this sphere will swell, which will seem to us to increase, and sometimes considerably, the size of the atom.

15- the difference between the effect of gravity and the electrical effect:

Since a proton excessively pulls space waves in one direction while an electron pulls them in exactly the opposite direction, it's easy to understand that the space waves distorted by a lone proton will, in the course of their successive pulsations and to relieve themselves of the tensions it causes them, bring any single electron in its vicinity closer to it. This gives the impression that two electric charges of opposite signs are attracted to each other but, in reality, this effect is the result of the action of space waves that bring them closer together. So there's no mysterious action at a distance between the two charges.

In the same way, we understand that space waves will progressively move two electric charges of the same sign away from each other, in order to reduce the intensity of the deformations they cause. This will give us the impression that the two charges are repelling each other.

As we have assumed that, with each return pulse, the space waves take advantage of the dislocated time of the electrically charged particles to regain their normal surface, the electrical effect causes neither a loss nor a gain of surface for the space waves.

We've seen (chapter 4) why gravity is a one-way street (the folds in waves always cause them to lose volume, never to gain it), and we've now seen why electricity is a two-way street: one corresponding to the temporary loss of quanta of surface, the other to the temporary gain of quanta of surface.

By the way, the reason we talk about quanta of surface is, of course, because we know that electromagnetism causes energy exchanges in quanta corresponding to the same unit of energy. We must therefore assume that the surface of space waves is made up of "grains of existence" that all occupy the same volume in space, which disperse into "powders of existence" during the moment of pulsation when the waves break up, and which regroup into grains of the same size when the waves recombine.

Electromagnetism is an aspect of the functioning of particles of matter, and is therefore subject to the principle of indeterminism intrinsic to their mode of existence. For its part, it was assumed that gravity would be an aspect of the functioning of space waves which, at least on their global scale, has no reason to be affected by this same indeterminism. No wonder, then, that it seems impossible to bring together the quantum world and general relativity in a single mathematical theory: the two would simply correspond to successive stages in the universe, and thus to very distinct and irreconcilable functionings.

16- on black holes:

According to our hypothesis, what we identify as a black hole, that is to say as an intense gravity well without apparent matter, would only be an area where folds of deformation of space waves are concentrated in great abundance. Either this concentration results from the fact that these folds have never organized themselves into matter in this area, or that some catastrophic event has destroyed all the organization of matter that existed there. The effect of gravity is then explained by the crumpling of waves whose surface is constant and which squeeze up under the effect of this crumpling, even if the folds which cause this crumpling are not organized in matter or radiation. When these deformations are so dense that the waves cannot accept their presence and must consequently evacuate part of them, they seek a way to organize them progressively and end up finding in the form of symmetrical jets the most effective means of moving them away, which then corresponds to the quasar jets of which we know that there is one at the center of each galaxy associated with a more or less massive and more or less active black hole.

Isn't it all the same strange to present, as is often the case, black holes as certain and well-understood realities, when their usually accepted manifestation is the presence of such symmetrical plasma jets escaping from them? For realities to which we attribute the property of attracting and absorbing everything in their vicinity, even light which nevertheless travels at an unsurpassable speed, these jets which escape have a somewhat absurd aspect. They are usually explained by the properties of the magnetic field which would be associated with a black hole and its accretion disk, but, as black holes are justified as being singularities linked to the functioning of gravity, this explanation suggests that we would know how an effect of magnetism can be produced from an effect of gravity, while the relationship between gravity and electromagnetism is precisely a central difficulty with which contemporary science stumbles.

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