THE DESCRIPTION OF UNIVERSAL COHERENCE

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Because we need to understand in which world we live

INTRODUCTION

Is nature coherent?

It seems that yes.
Present metaphysics is based on the basic ideas of quantum mechanics and cosmology to validate its explanations.

The philosophical consequences of this coherence are they also approached.

Research in progress and site in evolution.

The physicists calculate interpretations…

… and the metaphysicians interpret calculations: -)

RECEPTION

1. INTRODUCTION

2. LOOPS SPACE

3. *“In” nothing* DIALECTICAL POINTS AND MOMENTS

4. *Point of view* PROLONGATIONS THE LOCALITY

5. THE MOVEMENT AND INERTIA

6. *The expansion cosmic* THE BIG-BANG ENERGY AND MATTER BLACK

7. *Interferences duplicated* ATOMS WAVES

8. *Four interactions* GENERAL GRAVITATION WEAK ELECTROMAGNETIC STRONG

9. FERMIONS, BOSONS AND THE SPIN

A modern proposal for a metaphysics

The basic elements of quantum mechanics and cosmology are like parts of puzzle. The description of universal coherence links them in the same general logic, which goes from the smallest scales to largest. The table thus made up shows something of strange. Space is in the absolute like time: it is basically unidimensional, which explains many paradoxes.

Science for “is not completed as much”. In its current state, it reveals a new metaphysical horizon.

These explanations bring to our representation of nature new mental images. They melt a metaphysics which, hope for it, will contribute to make more lucid presupposed where our ideas are enracinent.

The reason enables us to adapt to a nature in the absolute rational, coherent. At the price however of a going beyond of what our five directions perceive of the universe.

1. New concepts, more or less diverting, are attached here the ones to the

10. **BLACK HOLES**

11. **RELATIONS QUANTUM**

12. *H! H… H?*
UNTIL 19th
The 20th CENTURY
The 21e CENTURY
SOLUTIONS?
MUTUALISATION
COMMUNISM

13. **CONCLUSION**

14. *How to make?*
BASIC CONCEPTS
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BETWEEN SCIENCES

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17. **IN MARGIN**

CONTENTS

others in a strange geometry.

2. This site uses an affirmative style only to facilitate of it the reading. With the second degree it is primarily interrogative, writing with conditional, the doubt is permanent there.

3. Thank you to bring all the useful criticisms and suggestions.

Critical and welcome suggestions!

ladcu [At] wanadoo.fr
(Replace [At] by @)

For a better discovery of this site, it is preferable to follow the order of the various sections, of going from the introduction to the last page.

This metaphysics melts its rationality on its agreement with science and the exposed concepts are complex. Its reading requires a certain attention, time. A simple overflight of the text is not enough with discovered to universal coherence. The level of difficulty does not exceed however that of a scientific popularizing work.

INTRODUCTION

The current address of this site:

http://perso.orange.fr/coherence/

Easy way:

It is enough to type **ladcu.net** in the bar of addresses of the navigator
to reach this site

Setting in line on February 3, 2006

INTRODUCTION

Good reading!
I hope that each one will take as much pleasure to read this site
that I had of it to write it.

MENU

HIGH OF THE PAGE

Section 1

INTRODUCTION

Return

- **With what do have we to adapt to survive? With a coherent nature or an incoherent nature?**
- **Does there exist between the human interests, at least potentially, a coherence such that we all can live in harmony the ones with the others?**
- **Is there enough coherence in the nature so that solutions with contradictions of our respective interests are possible - true solutions, not of the sweet talk?**
- **Or is this “naturally” every man for himself in a stuffed universe of ruptures and insuperable pits?**

Presupposed the more or less conscious ones concerning coherence or the nonsense of nature, of the universe, thus predetermine our behavior with respect to the others, of our projects, our choices of company. This question of the coherence of nature covers thus with the stakes which exceed simple curiosity: it goes there from the more or less rational orientation which we print with our own lives, with the social system.

Thus let us seek a form of universal coherence which corresponds so that we know universe. If we find something, a world righter, more harmonious, will cease seeming a Utopia to become a “natural” prospect, rational.

(Several clip arts of this site
come from the Open Clip Art Library)

“The major comprehension of the quantum world is a challenge which should not remain confined at the only community of the physicists. All those which try to think the world, to start with the philosophers, must know that these conceptual problems exist, and to appreciate of it the difficulty, but also the range. Will progress pass by a reformulation of the same bases of the theory? Will they be started, like generally in physics, by an unexpected result which could appear in the experiments increasingly more refined than the physicists ingénient themselves to develop?”
(Collective, *Tomorrow, physics,* Odile Jacob, 2004)

Welcome in the universe! : -)

Let us consider the whole of the components of the universe. It is quite obvious that they are not permanently assembled in the same way. When they are grouped in a certain way, they constitute the universe in a certain state, when they are it in another way, they constitute the universe in another state. A perceptible analogy on our human scale: when water molecules are linked in a certain way, they constitute snow; linked in another way, they constitute water drops. The history of the universe returns thus to the history of combinations and successive déstructurations of components.

A plentiful unit

Let us consider the structure now formed by the components of the universe at one unspecified moment T.

At this moment T, potentially, the same components of the universe could be arranged differently. They would constitute then another universe, more or less exotic. Constantly the components of the universe could be laid out in multiple ways to constitute multiple

potential universes. As the materials constitutive of a house could potentially arrange multiple ways to constitute multiple more or less exotic houses.

Ask we now how multiple parallel universes could coexist, while dividing the same components. Why this odd interrogation? Because we seek a general coherence of nature. We wonder how all that is real belongs to the same unit, the same interdependence universal. How all the tricks can be brought back to the same thing? Does somebody see how multiple parallel universes can at the same time evolve/move independently from/to each other and jointly have same elementary “bricks”? How these universes can belong to the same unit? Their existence remains completely hypothetical. It is only in the immediate future a question of developing an outline of logic which brings multiple facets to the same fundamental unit. In order to account for the multiple facets of the unicity of reality.

How two unspecified particles can be to they jointly with a few centimetres one of the other in a universe and to be at the same time to million kilometers one of the other in another universe? The solution it is space, or rather spaces, which differently connect the particles constitutive of each universe. Let us suppose that there are other space dimensions, in addition to our height/width/depth. Let us imagine kinds of space arch, of which a foot chapeaute Europe and the other foot chapeaute Australia. The longer the arch is and the more the light which follows the curve from there must cross a long distance. More the two continents see then distant one from the other. In the same way, the light, when it reaches our glance, like all our movements, all our displacements, follow the space in which we live. If this space contracts, dilates, many things approach or move away the ones the others. On the other hand if our made usual space of the nodes in some hyperspace, the light follows the curves without blow from there to férir and seen interior, our space appears right to us, Euclidean.

As for the tower Eiffel, here it is the now dissolved one in multiple spaces, multiple parallel universes, which do of them what they want! I.e. multiple spaces connect its components in multiple ways - it has as many different forms jointly than there are spaces different from/ to each other.

Let us recall that the existence of the parallel universes is completely hypothetical. It acts here, as in mathematics, to start from more or less abstract premises and to see where they carry out us logically.

With different spaces, multiple parallel universes could divide the same constitutive elementary particles. These particular spaces would evolve/move independently from/to each other “around” of their common particles. Each universe would be “direct” compared to itself, as our universe is “direct” compared to ourself, and it would be jointly “parallel” compared to each other universe.

There would be in this division of the same particles an incommensurable economy. The matter constitutive of only one universe would be enough indeed with the joint constitution

to a great number of universes equivalent to ours! And if we push this logic further? If we did with the elementary particles what we did with the universes? Can only one indivisible absolute particle be enough with the constitution to all the elementary particles? There would be still a beautiful illustration of the principle of minimum. If we could reach this stage, we would wonder then how the universe can be created from nothing, starting from nothing.

Something unifies the elements of a coherent universe since the first moment. I.e. since a time when nothing had still had time to be different, where all was still unified. Our research must thus initially undertake us towards something of elementary, of very simple.

Then, if what we found is valid, us should be able to find, at least qualitatively, of the processes of complexification which respect the laws of physics. At the end of this logic, a “complex unit” must give an account of what physics describes of nature.

Towards the stage number 2

How to make so that space multiplies only one particle to give multiple particles? Caution: *to multiply* is not *to divide*. It is rather easy to create small particles by splitting a large particle - by dissolving a molecule for example. But in this case, we would not have gained anything, us would not have progressed in our logic. We that would not have exchanged a banknote against the same amount in small cuts. But us, which we want to do, it is a financial miracle. It is *to multiply* our banknote: to make a bundle with only one ticket. As the multiplication of only one universe by independent spaces gives multiple parallel universes.

The key of the enigma is in the following section:

SPACE LOOPS

Section 2

SPACE LOOPS

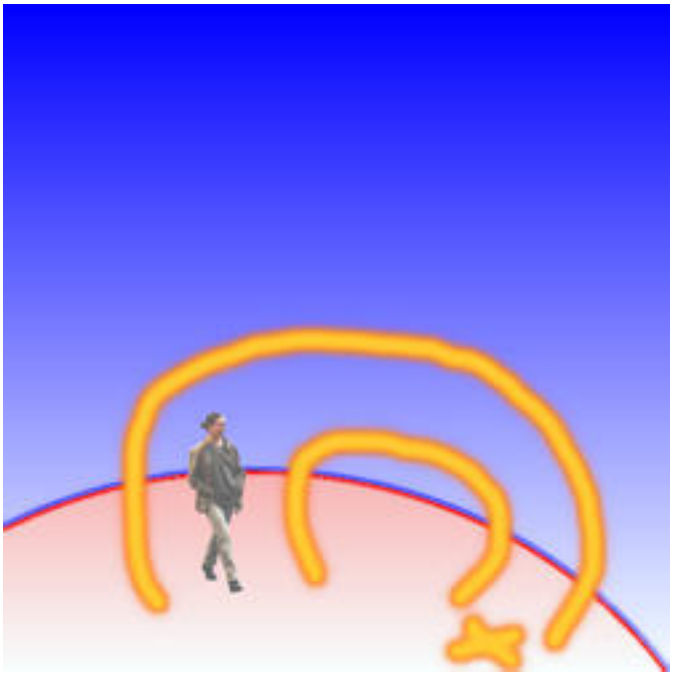
Return

Here a shipwrecked man lost on a small planet plunged “in” nothing. A space tunnel opens right in front of him, which seems to lead to another planet. Perhaps an exit! The unfortunate traveller engulfs himself there. He sinks right in front of him… But it is found on starting planet. It has just been victim of the strange geometry of a space loop.

“It was discovered recently that the physical phenomena can often be described in two also valid ways: one can as well say as a particle moves in loop closed within a given motionless framework as to support as this particle remains motionless and than it is the space and the time which fluctuate around it.”
(Stephen Hawking, *Universe in a nut shell,* Odile Jacob, 2001)

How to make so that space multiplies only one particle to give multiple particles?

The solution it is the space loop. Let us examine this drawing:

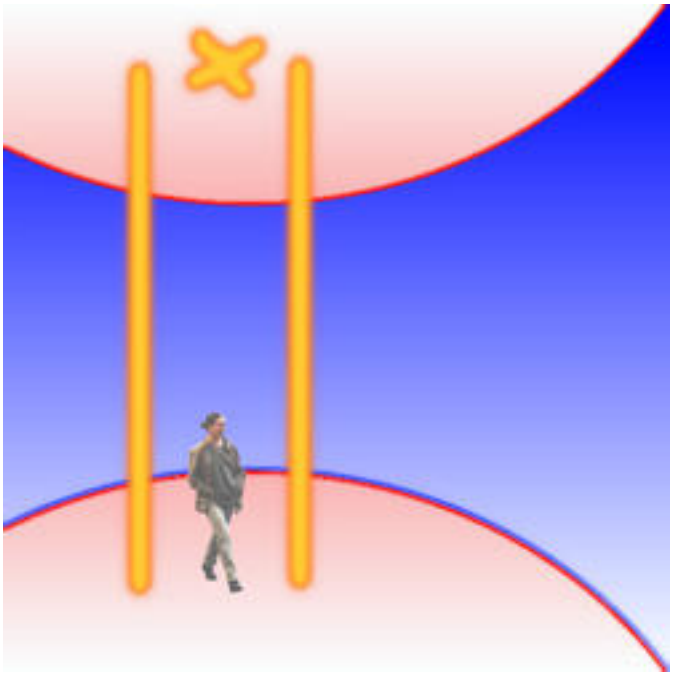


The light follows the curve of space (intuitive outline)
(Illustration: DCU)

> The majority of the images of this site open in a large size while clicking above. Attention, with a connection to low flow, the remote loading is long.

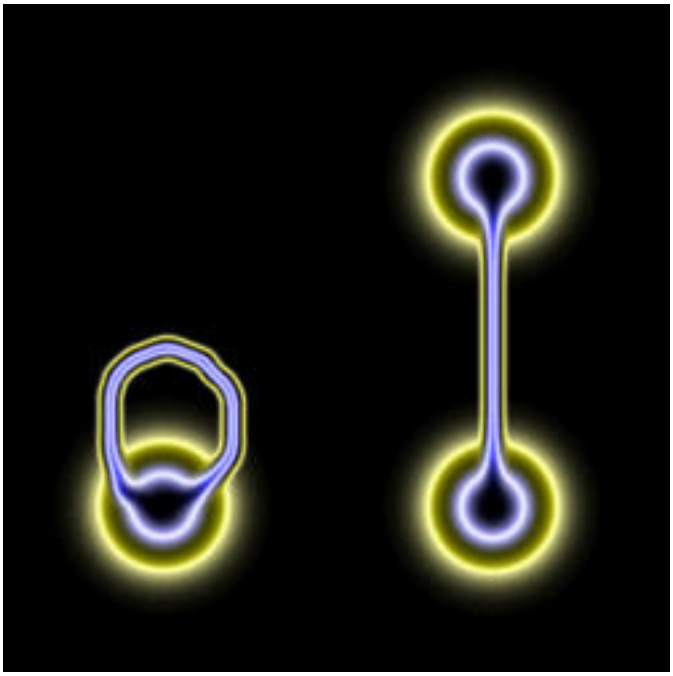
The glance of observant located “in” a unidimensional space loop follows space. To tell the truth, its glance cannot follow another thing, because beyond space, it is nowhere. The blue sky is there only on a purely decorative basis.

It does not see what occurs outside the loop. No external landscape indicates to him that its space is curved. Then it does not see a cross drawn on the particle where it has the feet posed, but a cross on a second particle located vertically at the top of its head. For it the same line can pass by the center of each of the two particles, which paradoxically are the same particle.



Nothing indicates to the observant one
that its unidimensional space is curved
(Illustration: DCU)

Of course, if the observant one could leave its space, it would not observe any more that only one particle, with a space loop, and either two distinct particles separated by a puit from space. There is a phenomenon whose certain characteristics change according to the “point of view”. The space loop duplicates the particle in the relative one, but not in the absolute: all depends on the selected reference frame. In the absolute an absolute particle emits a space loop, and in relative space bond connects two relative particles. A change of reference frame objectively does not change however reality observed. What occurs in the absolute is equivalent to what occurs in the relative one. The fact that a space loop duplicates an absolute particle is equivalent to the fact that a space bond connects two relative particles.



This absolute particle is equivalent
with two relative particles:
all depends on the adopted point of view
(Illustration: DCU)

We know all that the same thing can have different characteristics according to adopted points of view's. It is even very banal. For example a dog is smaller than an elephant, and it is jointly larger than a chip. It is at the same time relatively small and relatively large, its size results here from the superposition from two points of view.

In the same way, a particle with a space loop is *also* two particles connected by a space bond, all depends on the point of view. And each point of view is as real as the other.

But for the moment, only one particle multiplies only in two particles. Some particles moreover would make richer nevertheless.

This logic goes further

Let us imagine a closed unidimensional space which is divided into two and only two segments:

- A space loop
- A complementary segment

General diagram
of a space loop
and of its complementary segment
(Illustration: DCU)

The space loop “sees” the complementary segment by each one of its two ends, in the two possible directions, which duplicates the complementary segment. As previously a space loop the same particle duplicated. In the absolute exists only one complementary segment, but in the relative one exist two complementary segments.

Why limit itself to only one complementary loop and only one segment? Multiple space loops can coexist and more or less overlap. Each loop is attached to its particular complementary segment, which it duplicates in the relative one. I.e. it is attached to its two relative particles in the relative one.

General diagram
space loops
more or less superimposed

This figure symbolizes six space loops, with their six respective complementary spaces. Each complementary space "is however seen" twice by each space loop, since one and the other end of each loop sees it. These are thus not six complementary spaces which are seen in the relative one, but twelve. Thus exist here six space loops and twelve unidimensional relative particles.
(Illustration: DCU)

Here is how space can multiply only one particle to give multiple particles: while being divided into multiple space loops.

Only in the absolute a unidimensional space divided in the relative one into space loops and complementary segments exists. Its two ends are inevitably in contact, since there is between them only nothing: there is nothing, not space, which closes it. Beyond the space loops there is indeed "nowhere", it is only nothing.

The totality of the universe returns thus to a unidimensional space (the unidimensional particle absolute) whose each segment (each space loop) duplicates by each one of its two ends a complementary segment (a unidimensional relative particle).

Each space loop indeed has two ends, it "thus sees" twice what for it is the remainder of the universe. It thus duplicates the absolute particle (itself excluded) in two relative particles.

Three points of view

The geometry of a space loop can be considered since three equivalent points of view:

- A point of view "external" (absolute) with the space loop.
- A point of view since one of the ends of the loop.
- Another point of view since the other end of the loop.

Each segment "sees" under two different angles two "identical" universes: one by each one of its two ends. It thus duplicates the remainder of the universe in two relative

particles. What does not prevent it from “seeing” also what the other segments see, like prolongations of its clean “vision”. These mutual prolongations will be studied in a forthcoming section.

R = 2# relative particles

More than two or twelve relative particles are obviously necessary to constitute the universe. Thus let us consider that # space loops form the universe. # is a very great variable and finished number. Each space loop has two ends: it thus duplicates twice the absolute particle (itself excluded). What gives 2# relative particles.

R = 2#, with:

- **R** (like relative): numbers even relative particles constituting the universe.
- **2**: each space loop gives two relative particles.
- #: a number of space loops.

The number R of space loops is a variable. At a moment given all depends on the movements and the geometries in action. Only one loop can split in several loops, and several loops which are made continuation can amalgamate in only one by their length.

When there is fractionation, the two initial particles disintegrate in other pairs. When there is fusion of loops, there is at the same time fusion of pairs. There we find for example certain aspects of the “quantum vacuum”, where permanently pairs of particles are created spontaneously and are destroyed at once after their creation.

Space everywhere

There are # space loops and 2# complementary segments in the relative one. *There is not anything else.*

It is necessary for us thus to rectify what was drawn previously: the “surface” of the

absolute particle does not exist. It is only one approximation easier to apprehend intuitively than a purely unidimensional space. What actually exists, it is a whole of segments of absolute dimension. To each segment a space loop or a complement corresponds. The loops close, or are separated by at least another loop, or are imbricated in “under loops” the ones in the others, entirely or partly. And the whole is moving permanent.

From such a unidimensional space the universe emerges at every moment, with all its physical variations and all its laws.

has B C of the movement

Divisions and fusions of the space loops involve in each case of new distributions of the movements which the loops are carrying. An unspecified relative particle is indeed moving compared to another when the length of the unidimensional space which separates them varies:

- Or the length of a space bond lengthens, the two corresponding relative particles move away one from the other.
- Or the length of a space bond remains fixed, the two corresponding relative particles remain at equal distance one of the other.
- Or the length of a space bond decreases, the two corresponding relative particles approach one the other.

These variations length of the space loops create three elementary components of movement:

- Increase or more or less chaotic reduction length of the loop (increase or reduction in the distance from two relative particles).
- Amplitude of the movement length of the loop (amplitude of the variation of distance between two relative particles).
- Frequency of a reciprocating motion of increase and reduction length of the loop (frequency of a reciprocating motion of increase and reduction in the distance which separates two relative particles).

All that oscillates is particularly interesting because quantum physics shows that an energy E is equal to the Planck's constant H multiplied by a frequency v (E = hv). The space loops

are thus carrying multiple forms of movement, including oscillations, therefore multiple forms of energy - thus also of multiple masses since E = mc2. In these multiple vibratory states of the space loops correspond thus of multiple states of energy, of multiple fields, multiple states of the matter.

The propagations of the movement between the loops is superimposed in multiple unidimensional components. It takes multiple more or less probable “ways”, which correspond in successive intermediate states.

Let us specify well that they are here unidimensional movements **of** space, not of movements **in** space. The space loops are not in a space since they are themselves space.

It is the movement which makes the segment

The rotation of a particle relative compared to the remainder of the universe is equivalent to the slip of a segment along absolute dimension. This slipping segment “gradually sees” the universe “under another angle”. And reciprocally, each # - 1 other space loops “gradually sees” the segment slipping “under another angle”. In other words the rotation of a particle relative compared to the remainder of the universe is equivalent to the movement of a space loop which moves in a direction or the other along unidimensional absolute dimension.

In fact it is not so much a segment which slips that a movement. The undulations of a cord which one agitates offer a partial analogy. They move along the cord: there is slip of the waves, not slip of segments of the cord.

Ranges by successive variations length between the relative particles, the space waves can cross, interfere between them and be more or less preserved, as on the surface of water the waves can cross, interfere between them and be more or less preserved.

2# - 1 synchronous variations of space bonds

For each space loop, provided with its two ends, there is not only one universe, but two universes. The respective movements of these relative universes are “curiously

synchronous”. Myriads of particles are in correlated states, whereas they do not exchange any information. Or then, if they exchange information, it is instantaneously, at a speed higher than that of the light, which is physically impossible. However the phenomenon exists indeed. Since its space loop, the observant one, which is a physician, issues that certain particles are in “intricate states”…

The least variation length of only one loop is duplicated indeed twice for each other buckles. It is thus enough to a negligible variation in the length of a space loop in the absolute to start 2# - 2 unfoldings of this movement in the relative one. More the movement of the loop itself, that gives 2# - 1 synchronous variations of space bonds in the relative one. This point will be developed further.

Appearances are misleading

Unidimensional spaces appear simple. But they are complicated. We will see with the wire of this talk that it is even possible to reconstitute the universe from them. We live indeed in a strange 3D: in the absolute it unidimensional and is deprived of volume. But we all are made of this “telegraphic space” and are plunged inside. The light follows this space, which appears homogeneous to us.

We can also see simultaneously since more than one space loop at the same time. From this geometrical superposition is born our usual space with more than one dimension.

We can on the other hand simplify us the life by giving up the parallel universes. All the space loops have ends in direct or indirect contact indeed the ones with the others. They constitute a single absolute dimension thus. There is thus “one parallel universe”. We will bring out nevertheless the parallel universes of their wall cupboard if unforeseen complications force us there.

“IN” NOTHING page 1

THE DIALECTICAL ONE OF NOTHING

Return

Parallel universes, we passed to only one universe. Then particles relating are brought back in the absolute to only one particle. If we continue in this logic and that we remove the particle, there remains nothing any more but nothing.

But does nothing exist? This question yes universal coherence answers “but”… Yes nothing exists, but this existence realised other thing that nothing, which gives space and time.

“The exclusion of nothing will appear however paradoxical with certain successors of Parménide. One could not indeed draw aside the non-being without making a concession: to affirm as being nothing.”
(Etienne Klein, the *unit of physics,* University Presses of France, 2000)

If there is nothing, it is that there is nothing, since there is nothing

- Or there is “something” and in this case, obviously, there is no nothing.

- Or there is nothing and in this case… there is nevertheless an existence. There exists “nothing”. If there exists “nothing”, then there is necessarily something in “nothing”. Either “nothing” exists, or something of other that “nothing” exists. “Pure nothing” within the meaning of “pure non-existent” does not exist. It “is always broken” by an existence: that of nothing or that of something of other that nothing.

“Before” the existence of the universe, it is nothing which exists. There is then “in” different nothing thing that itself, which of “breaks” the purity. It is the existence of its own existence - the existence of another thing which the existence of nothing.

There are thus three things not to confuse:

- Nothing
- The existence of nothing
- And a third thing: the existence of the existence of nothing

Yes when there is “nothing” there is nothing. But there is not only nothing. There is also the existence of nothing and in more it there the existence of the existence of nothing.

Let us continue, it y a:

- Nothing.
- The existence of nothing.
- The existence of the existence of nothing.
- The existence of the existence of the existence of nothing.
- The existence of the existence of the existence of the existence of nothing.
- The existence of the existence of the existence of the existence of the existence of the existence of nothing…

And so on until the consumption of times. Nothing of what exists can be deprived of existence. If nothing exists, then it has an existence, which it even has an existence, which it even…

In short, nothing does not exist “all alone”. There is on the one hand the existence of nothing, i.e. it has nothing itself. And there are in addition the successive existences of the existence of nothing, i.e. the existence of another thing that nothing. There is on the one hand nothing and there is on the other hand its negation.

Nothing has neither wide, nor lasted…

… thus its negation has an extent and a duration. The successive existences of nothing, it is the universe. The existence of nothing and the existence of the successive existences of nothing are distinct, but they constitute together the two poles of a dialectical unit.

There is in the successive existences of nothing something which extends, which lasts. There are thus unicity, interdependence, *dialectical,* between nothing, space and time.

Moreover the universe cannot néantiser, since its self-destruction would involve the creation of a succession of successive existences of nothing. I.e. its self-destruction would involve the creation of… itself.

Unconscious collective

Our metaphysical happiness will be with its roof when we know that from Latin “LMBO”, who means “thing”, come the words “nothing” and “reality”. Tens and tens of successive generations thus made push, by the evolutions of their language, the words “nothing” and “reality” like two branches the same tree. There is a kind of unconscious collective reflexion, which seems to express dialectical non-existent/ what exists.

“IN” NOTHING page 2

POINTS AND MOMENTS

Return

The “wall of Planck” of quantum physics - a horizon - us reveals that for a length lower than 1,62.10-35 meters or for a time lower than 5,4.10-44 second, the concept of space time cannot be treated any more by known physical laws. We thus should find a “pregeometry”, to take again a term of the physicist John Wheeler. I.e. an enough major system to take over physics. Thus let us try to describe the most elementary structures of the universe.

We already traversed a certain way, since we have just reached nothing. Difficult to find more elementary. It is necessary for us thus to reconstitute starting from nothing the space loops, the relative particles… in short, all the universe.

“Why there is something rather than anything?”
(Gottfried Wilhelm Leibniz)

“Paul Davies testifies some, the educated public that it meets at the time of its conferences often has great difficulties in admit that seemingly banal questions: “That was there before the beginning of the Universe?” or “In what the Universe it was formed?” do not have directions in physics.”
(*Research* number 349 of January 2002)

**… These questions do not have a direction in physics,
but they have one in metaphysics of them!**

Is there a metaphysician in the room?

The spatiotemporelle form of nothing

Nothing can dialectically give only its successive existences. I.e. its spatiotemporelle negation.

Then which is the space which is nothing but is nevertheless, thus preserving the space neutrality of nothing? It is the point. It has neither volume, nor surface: a good candidate with the structuring of nothing.

We thus have a basic unit of space: the point. But what happenhappen does basic unit of time?

The beginning and the end of any moment present are every two present, they are confused. Any moment present thus has a null duration and eternity is made up only of one succession of one null duration moments present.

Points and moments are the basic units of space and time exits of nothing. The point is with space what the moment is in the time.

Succession of points and moments

Nothing exists and this existence has it even an existence, which itself has an existence, which itself… There is a continuation without end. This continuation, let us recall it, is the negation of nothing, i.e. it has an extent and a duration. New existences of the existences of nothing are thus created permanently. These successive existences have an elementary spatiotemporelle unit: it creates for itself a point moreover at every moment moreover. The continuation of points lengthens, i.e. in the absolute the length of the universe increases. And jointly the continuation of moments lengthens, i.e. the age of the universe increases. *In the relative one,* general volume of the universe increases with time. What we can observe with the recession of the galaxies, due to a general dilation of cosmic space.

Space is a succession of points, as time is a succession of moments. Let us notice that in the absolute space is unidimensional like the east time. A symmetry exists thus between space and time, larger than lets it suppose the space time, such as it appears to us in the relative one.

In the absolute only variations of unidimensional continuations of points and moments ago. But each point does not have any space reference mark external with its unidimensional space, which enables him to decide if the other points are compared to him on the right and on the left, or in top and bottom, or in front and behind, or in such or such hyperdimensionnelle direction… As many unspecified geometrical states which are superimposed. They create a multidimensional relative space, which is more one unit of potentialities that a reality. In fact an order exists nevertheless: the points are followed in their order of creation. Each point is distinguished from the others by its age, by its position in the continuation.

In addition the points can néantiser, they cannot disappear apart from space, i.e. “nowhere”, like the moments cannot disappear apart from time, i.e. “never”. Space and times are preserved because they cannot make differently.

A point moreover at every moment moreover

Let us consider the first point now, at the first moment. It is not located in any spaces, since it is itself space. It would be located in space if it were in the cosmic vacuum for example. But it is “in” nothing. There is neither space, neither form, nor outsides existence with itself. Without external space, not of outside. It thus does not have surface, of limit outsides. As a point, it does not have volume. It thus does not have either limit, of surface interior. It is indeed the product of nothing.

What does it occur at the second moment? Creates for itself a second point, negation of nothing, material reality of the existence of the first point. The universe changes considerably, since maintaining each of the two points even has one “beyond him”, an outside which is the other point. Moreover they have a temporal orientation, since the second point exists after the first.

Each of the two points cannot amalgamate with the other point, since it does not have volume. Since they remain differentiated, it is that a limit separates them. However it creates for itself a new point at each new moment. It thus creates for itself at every moment a new limit between the last point created and the whole of the other points.

In the same way the moments cannot amalgamate between them since they do not have

clean duration. It thus creates for itself at every moment a new limit between the last moment created and the whole of the other moments.

These differentiated elements accumulate. Certain sets can count a more or less great number of elements that other sets. Any whole of points or moments can thus be more or less large and more or less small that others. Appear at the same time the more or less big lengths in the space (of more or less great sets of consecutive points or not) and the more or less big lengths in time (of more or less great sets of consecutive moments or not). The quantities of spaces and time are relativized.

- An unspecified length can exist only if its length is at least equal to two points.
- As an unspecified time can exist only if its duration is at least equal to two moments.

Only a succession of points and moments have an intrinsic, quantifiable length and a duration. An isolated point or a moment is neither of space, nor of time.

Let us notice in the passing that the space loops have two ends: their minimal length is necessarily of two points at least.

Provided that a space counts at least two points, or that one duration counts at least two moments, of the variations of a point or one moment can then exist. Any variation is not however obligatorily at least of two points or two moments. Only one point and/or only one urgent is enough provided that the space which varies account at least two points and/or which the time which varies account at least two moments.

Let us extrapolate these considerations with quantum mechanics. Let us recognize in the minimum of two points the “length of Planck”, and in the two moments minimum the “time of Planck”.

Space loops made up of points

The creation of a point moreover at every moment moreover creates at the same time reference marks spatiotemporels (reference frames) which make it possible more precisely to define the unidimensional movement of the space loops.

Any segment of absolute dimension (thus any space loop) is delimited by the local

movement which it is carrying.

- It can move since points relatively old worms of the relatively recent points. This displacement is equivalent to a rotation, issue it positive, of a relative particle around an other.

- It can also move since points relatively recent worms of the relatively old points. This displacement is equivalent to rotation, issue it negative, of a relative particle around an other.

- It can also lengthen or decrease. This movement is equivalent to a variation of the number of points located between two relative particles.

A basic rotation

A space loop whose movement remains centered on the same point moves away at every moment (relatively) from the most recent end of absolute dimension. (Since it creates for itself a point moreover at every moment moreover.) What means that it makes turn its two relative particles “without apparent cause” compared to the whole of the other relative particles. There is thus a basic universal rotation which supports rotations in a direction which goes from the more recent points at the older points, with the detriment of rotations opposite.

In the same way, the continuation of points seen since only one point does not seem completely the same sight in direction of the older points, or in direction of the more recent points. In direction of the past indeed the number of points is fixed, whereas in direction of the future the continuation of points lengthens: it gains a point moreover at every moment moreover. Nature thus distinguishes the left from the right-hand side. Or, more precisely, it distinguishes the inert aspect from the universe, its evolutionary aspect.

Assumption: the material particles lightest, the neutrinos, undergo this drift and their helicity (their intrinsic rotation on themselves) turns only on the left. (The helicity of the antineutrinos turns only on the right.) In the same way, the organic molecules, which are retorted over long periods and can accumulate (to amplify) with the wire of the time even of negligible variations, distinguish left and right rotations. For example the human chromosomes contain a double gimlet of ADN whose helicity turns always right.

What was there before the first moment?

Before time exists (apart from time), it is “never”. The period located “before” the first moment thus never existed. What comes down to saying that the first moment never appears. In this case nothing exists, which comes down to saying (see higher) than the first moment appears. Catastrophe! The first moment never appears and it always appears. What it is necessary to include/understand, it is that nothing and the universe coexist. It is not nothing **or the** universe, it is nothing **and the** universe. We are as much “in” nothing that in the universe. What there was “before” the first moment accompanies the flow by time. What there is “before” the first moment and what there is afterwards, it is dialectically the same thing.

The arrow of time

The unit from what occurs at one unspecified moment counts more moments (and points) constitutive that what occurred at one former moment. It counts also less moments (and points) constitutive that what will occur at one posterior moment. Each beat of a clock is thus not completely the same one as the preceding and following beats. An asymmetry between the past and the future thus exists. This is why time distinguishes the past from the future, it passes of last towards the future.

The creation of a point moreover at every moment moreover imposes that all goes from last towards the future. Nothing goes in the opposite direction, because destruction of points and moments ago. The voyage in the past is thus not only extremely improbable, it is completely impossible. As the voyage in the future is completely impossible, when it spends in action points and moments which do not exist yet. One would have suspected it. The voyages in the time violate the causality (cases of the temporal traveller which kills its grandfather with the cradle for example) - and the inconsistencies resulting do not have their place in an intrinsically coherent universe.

Also let us specify that we always walk all in the space time, never in space alone or time alone. We cannot free us from the creation of a point moreover at every moment moreover, i.e. of the space time. All that we can make, it is to traverse a more or less great number of points during a more or less great number of moments. When we walk in space, we evolve/move at the same time in only existing time, the present. The points are thus like the moments: they are always present, they exist only at present. The past does not exist any more, the future does not exist yet.

What does not mean that the present is passed at the same speed for everyone. All goes well on board a spaceship which approaches the speed of a point per moment. Except that its acceleration reaches a maximum more and more. It cannot indeed exceed this

speed limit of a point per moment, because it cannot vary more quickly than the universe. All the processes of ageing of the vessel, comparable to microscopic accelerations, slow down. Seen since the Earth, for example, the embarked clocks slow down. And reciprocally, seen since the vessel, the terrestrial clocks accelerate.

This speed limit of a point per moment will be supposed in a forthcoming section being equal to that of the light in the vacuum. Let us note that the Planck's constant and the constant speed of the light are two expressions of the same reality.

The non-existent pure one and the existing pure one does not exist

The non-existent pure one is inaccessible because there is no only nothing “in” nothing. There is the existence of the existence of nothing, i.e. the existence of another thing that that of nothing.

As for the existing pure one, it is him also inaccessible. If there existed indeed, there would be something in the existing pure one which would not be the existing pure one.

- That is to say the existing pure one would exclude the non-existent one: there would be thus inexistence of the non-existent one, and existing it would not be pure.
- That is to say the existing pure one would include the non-existent one: there still it would not be pure.

The non-existent pure one and the existing pure one thus does not exist. Only of intermediate states between these two inaccessible extremes parce exists an infinity “pure” and without existence. The permanent progression of the universe towards more existence results in the creation of a point moreover at every moment moreover.

The universe is a maximum with a minimum of means

We are accustomed so that the things exist or do not exist, in a binary way. So that there is a rupture between what exists and the non-existent one. It goes from there differently on the smallest scales, where there is continuity between what exists and the non-existent one. As long as an observation “does not fix” not their characteristics, a little like a photograph “fixes” the parameters of a crowd moving, the particles do not have a given existence. According to quantum mechanics, they have only one probability of presence. This probability has a form: that of a wave of probability. Everywhere exist thus waves of

probability which interfere more or less between them, with peaks of probability and hollows. In the absolute all can be everywhere, but overall the matter is rather where it is most probable that it is, it thus seems to us structured overall.

For example, more one electron has a great energy, more it is probable to find it on the higher electron shells, around the core of an atom. But there is not in a way determined, as a ball of billiards, on such or such layer. It has a probability of nonnull presence on all the layers. When its energy changes so that it changes layer, it does not move a layer with another. Its probability of presence changes state. The largest peak passes from a layer to another. As the presence of this electron is not completely located, it is spread out in a probabilistic way, the particle is to some extent “preexistent” everywhere, which enables him to appear and disappear everywhere, without moving, by “quantum jumps” which have nothing to do with jumps.

Nothing (the non-existent one) thus succeeds in creating the semi one existing on a scale particles and this semi existing succeeds in creating what exists on the great scales.

Metaphysics of an end of string

Between the first point created and the last, at one unspecified moment, there are on the one hand all the intermediate points, and on the other hand… nothing. The continuation of points constituting absolute dimension “is” indeed “in” nothing, i.e. **not** in a space, and even less in cosmos. The two extreme points are thus jointly distant and in contact (when there is no space between two objects, these objects are in contact). As are jointly distant and in contact ends of an end of string forming a closed loop. That a space loop (a segment) unspecified “looks” in the direction of the oldest points towards most recent or of most recent towards oldest, it “always sees” # - 1 loops: only exchange the order in which it “sees” the other loops.

Point of view of page 1

MUTUAL PROLONGATIONS OF THE SPACE LOOPS

Return

We certainly have just explored a universe whose absolute unicity melts the interdependence, the coherence of the components. But it does not resemble nothing tangible.

 # space loops in the absolute, with a particle relating to each end of each loop, that gives 2# relative particles. Then is the universe one [agglomerate of # relative particles] connected by # space bonds to another [agglomerate of # relative particles]? The direct observation of the universe makes it possible to answer by the negative one. We do not observe indeed an enormous thing spatially connected to another enormous thing.

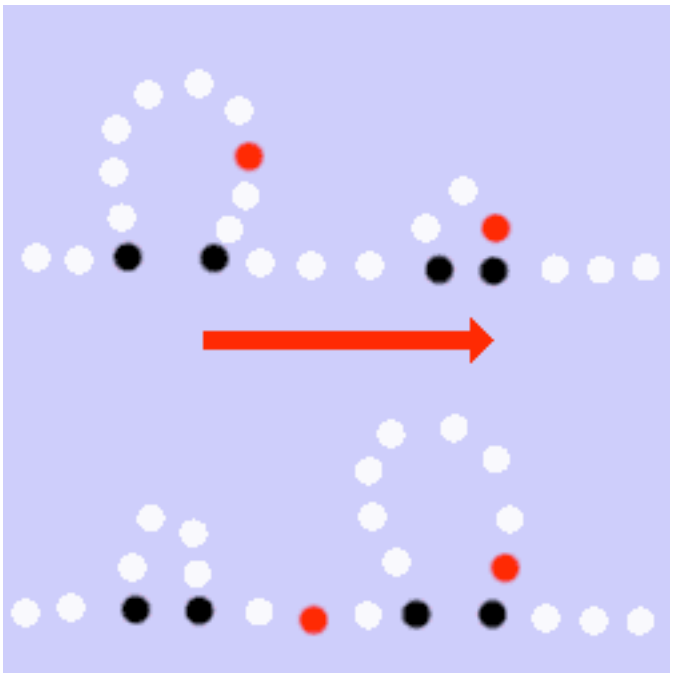
How will we thus draw we from business? Who has an idea? Nobody? However a solution exists.

“Quantum mechanics appears magic to us only because we miss a good geometrical theory.”
(Rene Thom, magazine *Explored,* March 1989)

Length and only the length

The space loops have into clean only one unidimensional space. They know only the length. Their spaces can be added when they are in contact direct or indirect, but only in the direction the length. The “stems” of the loops are bound without any vacuum between them, but nothing can cross a width which they do not have: any master key by the ends. They are the relative segments of only one absolute space bond.

Let us imagine that only two space loops constitute the universe. Also let us suppose that their cumulated length is lower (in a number of constitutive points) than the overall length of the continuation of points. They can slip along absolute dimension, and be even crossed. If they are crossed whereas they have an equal length, the universe does not count any more that only one loop during at least a moment. They can be also made continuation directly, without no point separating them. Let us consider the contrary case rather: they are not directly made continuation and from the points separate them. One decreases for example its length of five points. These five points can increase the variation which separate the two loops. But this variation can also remain unchanged, while the length of the other loop increases by five points. In this last case there is a slip of the points which separate the two loops. Finally, they can give each other or be caught length whatever the distance which separates them. That they are immediately close or that they are not there does not change anything.



Principle of the mutual prolongation of two space loops

- **Red arrow: direction of the displacement of five points**
- **Red points: pilot points**

- **Black spots: ends of the space loops**
  (Illustration: DCU)

It goes from there with two loops as with # loops. Even if two unspecified loops are separated by a great number of other loops, they can exchange length exactly as if they were immediately close. What gives a rather concrete image, but incomplete of the mutual prolongations of the space loops. It as should be considered as each loop not only “sees” the other loops, but that in more it “sees” what the other loops “see”. In a unidimensional space indeed, there is only transparency from one end to another.

Space prolongations

The feet posed on a relative particle, an imaginary observer located “in” a space loop looks with the top of him. Its glance follows the curve of space. It sees a second particle relating to the top of its head. Let us imagine now that the relative particles are transparent. Its glance continues to follow the continuation of loops. It sees a third particle located in the prolongation of the second. And so on. Nothing stops its glance, it perceives all the variations of its unidimensional universe. Like there is # space loops, there is 2# ends, it thus sees 2# relative particles in prospect.

However a relative particle, with each of the two ends of each space loop, it is the remainder of the universe, i.e. # - 1 other loops of absolute dimension.

Each space loop duplicates # thus twice - 1 other space loops of the universe. It is prolonged directly or indirectly by each # - 1 other loops. Moreover loops are provided with a direction since their constitutive points go from oldest to most recent. What sees our observer in a direction, by one of the two ends of the loop, is distinct and is added so that it sees in the other direction, by the other end. Each space loop thus prolongs 2 (# - 1) times the other loops, that is to say 2# - 2 times. It is necessary to add to these 2# - 2 loops the loop of reference where the observer is located, which gives 2# - 1 loops.

Since its space loop, the observer thus counts 2# - 1 relative space bonds. This phenomenon multiplies as many time as there are loops, which gives # (2# - 1) bonds, that is to say a total of 2#2 - # bonds for the whole of the universe.

(#-1) + (# - 1) + 1 = 2# - 1
that is to say 2# - 1 “visible” bonds
since each # loops

 # (2# - 1) = 2#2 - #
that is to say 2#2 - # bonds “visible”

since the whole of # loops

 # space loops in the absolute give 2#2 - # space bonds in mutual prolongations in the relative one.

(2#2 - #) 1 #

#(2# - 1)1/ #

Because of the mutual prolongations, each space bond duplicates 2# - 1 time in the whole of the universe.

What also means that any *movement* of unspecified space loop duplicates 2# - 1 time in the relative one, in the whole of the universe.

Thus, when a microscopic event occurs, for example when the length of a loop increases by five points, there exists about it simultaneously 2# - 1 clones disseminated everywhere in the universe. Any microscopic event exists in 2# - 1 “synchronous” specimens.

These microscopic synchronous events however mix between them multiple ways with the great scales. On our human scale, their “synchronicity” is scrambled so that all appears single to us.

Connections

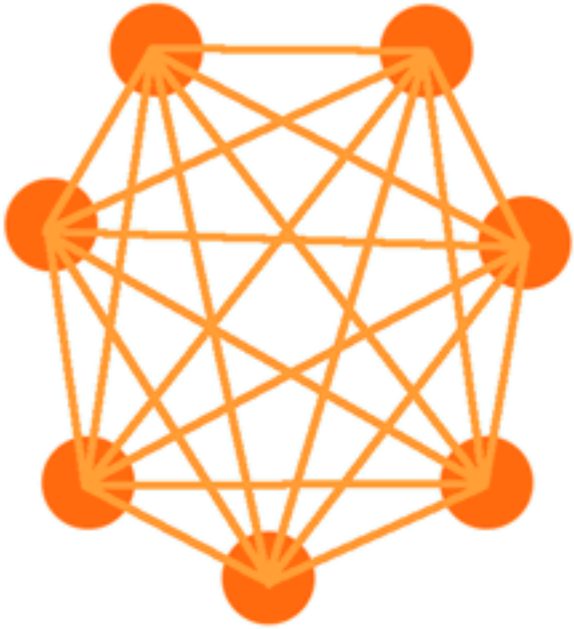
For any number N of points distinct from/to each other, there is a number L of bonds if and only if each N points is connected once and only one at each other point:

(N2 - N) 1/2 = L

For example for N = 7:

(49 - 7) 1/2 = 21

Let us check, connect seven points and count the bonds:



7 points and 21 bonds
(Illustration: DCU)

There are 21 bonds well. It is possible to multiply the examples, even if a multiplication of examples does not prove anything.

A test of truth

Forts of our formula L = (N2 - N) 1/2, we will wonder whether # space loops which are prolonged mutually in the relative one make it possible each relative particle spatially to be connected to each other relative particle of the universe. It is a question remained there outstanding since we wonder whether the universe one [agglomerate of # relative particles] is connected by # space bonds to another [agglomerate of # relative particles].

First stage. For any 2# number of relative particles relatively distinct from/to each other, there is a number there of space bonds if and only if each 2# relative particles is connected once and only one with each other particle relative particle of the universe:

$$y = [(2\#)^{2} - 2\#]\ 1/2$$

$$y = (4\#2 - 2\#)\ 1/2$$

$$y = [2\ (2\#2 - \#)]1/2$$

y = 2#2 - # space bonds

Second stage. As we already saw higher, each end of each # space loops of the universe is prolonged directly or indirectly in the relative one by # - 1 other loops. Each space loop counts two ends, it is thus prolonged by:

2 (# - 1) = 2# - 2 loops

With these 2# - 2 loops in prolongation is added the loop itself, which gives a whole of 2# - 1 loops.

And there are as many sets of 2# - 1 loops than there are loops. That is to say on the whole (let us call this total Y)
(2# - 1) = 2#2 - # space bonds.

Y = 2#2 - # space bonds

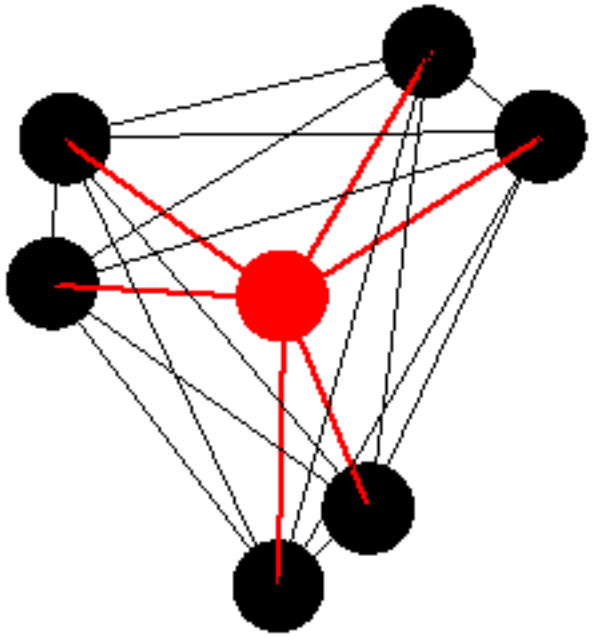
y = Y

CQFD

A space bond thus connects well each particle relating of the universe to each other relative particle. The universe one [agglomerate of # relative particles] spatially is not connected by # space bonds to another [agglomerate of # relative particles].

2# spaces

Each relative particle is thus connected spatially to each other relative particle of the universe. From its clean “point of view” it is located at the “center” of the whole of the 2# - 1 other relative particles of the universe. 2# spaces has each one thus a relative particle for “center”.



Each relative particle
is in the “center” of the whole of the others
(Illustration: DCU)

We will further see these 2# spaces constitutes a pseudo-space with four dimensions. Only structures of space bonds cash to more three space dimensions can extend. Result from this restriction the nuclear gravitation, magnetism and the two interactions.

The radiation of the black body

The mutual prolongations of the space loops and the unfoldings which they cause suggest the existence of regular and repetitive movements in nature.

That is to say interior of a furnace - black when it is cold, but which can be heated with white. The electromagnetic waves which fill up it oscillate all the more quickly as they carry a great energy, a hot summer days. The variation does not take place however continuously, but by identical “stages”, in a discrete way. They all are a multiple entirety of the quantum hv, with H Planck's constant and v frequency. They are the “clean modes” of the radiation of the furnace.

Let us put forth the assumption that to each clean mode the movement of a space loop duplicated in the cavity corresponds. Only a difference in length of at least a point can distinguish the movement from two space loops, from where interferences and quantified variations wavelengths - i.e. of frequencies.

2# - 1 unfoldings of a space loop are not however all in the cavity, they are distributed more or less regularly everywhere in the universe. They thus undergo the action of all kinds of nonlocal environments. Their movements, their energy, fluctuate more or less around average values, they cannot be completely given. The absence of movement, energy, in the cavity, is thus paradoxically higher than zero. The “absolute vacuum” does not exist.

Up to what point what occurs in a place and at an unspecified time can it be located, in a universe where all is duplicated?

“When several particles are treated in causal interpretation, in addition to the conventional traditional potential which acts between them, there is a quantum potential which depends now on all the particles. Very important fact, this potential does not decrease as the distance between the particles increases, so that even between the most distant particles it can exist a very strong bond. This aspect, where very distant phenomena can have a strong influence, is what one understands by “nonlocal interaction”, and is dissociated considerably traditional mechanics.”
(David Bohm, F. David Peat, *conscience and universe, the* Rock, 1990)

More or less remote existences

The continuation of points is a succession of successive existences. However “an object” is different from “the existence of an object” and these two things cannot transform one into the other. For example “the letter L” is different from “the existence of the letter L”: “the letter L” cannot be transformed into “the existence of the letter L” and reciprocally. The existence of the letter L can nothing make for the word “peanut”. On the other hand the letter L can do something: lalaluèle. The points and their existences are not interchangeable, they cannot permute between them. The continuation is ordered. Each point is distinguished from the other points by its place, which corresponds to its age in the

continuation.

> Thus what a thing more or less close to another, in space or time? For one of the two things considered, the other thing exists more or less before the others.

For example the Moon exists before stars, it is closer to the Earth than stars. Tomorrow exists initially, after tomorrow exists then: tomorrow is closer than after tomorrow.

Composed of ordered points, # space loops are they also ordered the ones compared to the others. Each one of them is distinguished from the others by the age from its constitutive points, by its place in the continuation. Two unspecified space loops are thus more or less close one to the other.

What means that the propagation of the movement is it also ordered. When a pair of relative particles transmits movement to other pairs, it is in priority with the closest pairs, then with the least close. This quite alleviating propagation has great implications in the relative one: when we stoppers on a nail with a hammer, we do not crush all the universe. The universality remains compatible with the locality.

Vibrations of cords of guitars

With momentum and equal sections, the frequency of a short cord is higher than that of a long cord. The same applies to space bonds. With momentum and equal durations, the relatively short bonds oscillate a greater number of times than the relatively long bonds. The effects of the movement on the short bonds and the long bonds are thus the same ones with only one difference near: they are faster on the short bonds.

The result, it is that the effects of the movement are faster locally than remotely. When I type in a balloon, the shortest distances are between my foot and the balloon. I thus communicate in priority of the movement to the balloon, then with the air in the form of sound waves, etc the whole universe will resound gradually of this kick. But this echo will be diluted more and more tardily in a movement increasingly vast general. And yet each relative particle of my foot, like each one of those of the balloon, is connected to the 2# - 1 other relative particles of the universe.

Combinations of locality and not-locality

- On the one hand each space loop interacts in priority with the space loops closest to it in the order of creation of the leader characters.
- In addition each loop interacts indirectly more or less with the other loops.

The movement results thus from two kinds of interactions: local" and "nonlocal" interactions ".

- The interactions are local when they are exerted between loops directly in contact in the order or the opposite order of creation of the leader characters.
- They are nonlocal when they are exerted between loops separated by other loops.

Each movement is at every moment a particular combination of locality and not-locality.

The space bonds closest in the order to creation of the points exchange in priority of the movement, of the interactions between them. But this locality does not prohibit the exchanges between distant bonds, whatever the distance which separates them. Then which is the local environment such "burst" space structures? It is about the superposition of an all the more significant number of distant environments that the structure has a great number of distant bonds. This superposition creates new priorities in the propagation of the movement: the various environments interfere more or less between them.

However we saw previously that a space bond connects in relative each 2# particles relating of the universe to each other relative particle. Any movement of a relative particle has a universal component thus. Any variation length of a space bond is reflected in priority on the closest bonds, but also, to differing degree, on all the other bonds of the universe.

Each # space loops of absolute dimension duplicates 2# indeed - 1 time in the relative one. An unspecified event thus duplicates 2# - 1 time. The universe "jointly sees it" under 2# - 1 different angles. We will further see these different angles are in fact of relative "formlessnesses".

Ultimately, any local event is jointly local and not room, it is duplicated everywhere. Any variation of the distance which separates an unspecified pair from relative particles can thus interact with whole or part of 2# - 1 superimposed local environments.

The principle of less action, which minimizes the energy and the time of a trajectory, appears under one day new. The relative particles constitutive of any object undergo the constraints of their local environment, plus those of 2# - 2 nonlocal environments. From these cumulated constraints results the movement nearest possible to total blocking, of zero. The movement cannot however disappear completely, since it creates for itself a point moreover at every moment moreover: it

can only be minimized.

(Not) separability and intrication

- Correlations are “separable” when they are exerted between space bonds which are each one the unfolding of a different space loop. In this case these bonds can be carrying different movements.

- While correlations are “nonseparable” when they are exerted between space bonds which are each one the unfolding of the same space loop. In this case these bonds are carrying the same movements.

The particles which have in common space bonds duplicating the same space loop synchronize their movements instantaneously whatever the distance which separates them. But any movement is relative, the synchronous movements do not seem necessarily all identical. They disperse in more or less different environments. For example one occurs in an object relatively moving and the other in a relatively motionless object. Moreover relative particles are very small and in very great number: their movements are very muddled. This is why the fact that exist # sets synchronous of 2# - 1 space bonds each one does not perceive in an obvious way in the life of the every day.

Contrary to appearances, the nonseparable correlations are not transmitted at an infinite speed, but to a null speed. No distance is indeed to cross so that a duplicated space loop is correlated… with itself. Quantum physics speaks about “the intrication” of two particles having interacted at a given time: these particles constitute entirely or partly a single object in the absolute, whatever the distance which separates them in the relative one. Pseudos “correlations instantaneous” between their respective states are created thus. They result from the unfoldings of the movement of the same space loops.

Soft photons

They give an example of not-locality.

The larger energy (the frequency) of a photon is, plus its wavelength is small. Thus more the localization of this particle is confined in a small volume.

And conversely: a soft photon has a weak energy and its probability of presence extends in a vast volume. Such a photon indeed duplicates 2# - 1 time. The less it has energy in one of its local environments, the more it is sensitive to all that connects it to its nonlocal environments. More the causes of its local movements are nonlocal. These nonlocal components of movement, relatively important, communicate then local fluctuations to him such as it is agitated more or less “mollement”, passively, in a vast volume.

The tunnel effect

Another illustration of the not-locality is given to us by “the tunnel effect”. The potential energy of a quanton (generic term to indicate a microscopic object with the properties resulting from the superposition of undulatory and corpuscular properties) is fluctuating. Under the terms of the principle of indetermination of Heisenberg, his momentum varies according to a range of possible sizes all the more broad as the lapse of time considered is short. The quanton is agitated at the bottom of a puit of potential only temporarily. It arrives one moment when its quantum fluctuations enable him to leave the puit, to cross the barrier of potential which retains it captive. Then from which these fluctuations come? Each space bond constitutive of the quanton exchange also of the movements with 2# - 2 nonlocal environments. More or less chaotic fluctuations follow, which toss the relative particles in a more or less tumultuous microscopic movement.

The tunnel effect explains for example which certain radioactive decays last only one split second, whereas the half-life of plutonium is 24.000 years. Weak variations in the energy levels of the wells of potential of the atomic nuclei indeed have considerable consequences over the duration of “the imprisonment” of the quantum fluctuations, on the stability of the atoms.

In addition, when there is quantum fluctuation in a puit of potential, there is at the same time unfolding of this fluctuation including outside the puit. It is what explains why a signal can seem to cross a barrier at a speed of group eight times higher at the speed of the light ([1]), without to violate relativistic causality. (The speed of group is that of one zero or a maximum of the envelope of the wave.) In this case the signal “does not cross” not the barrier. It is degraded on a side, and in same time it reconstitutes other. It can then “be freed” the speed of the light since it is about the same duplicated signal. Displacement is only apparent.

([1]): Günter Nimtz, *Superluminal Tunneling Devices*, page 7, figure 6, arXiv 2001 (in English)

A point per moment, that goes
Two points per moment, there is no damage
because it is impossible

Section 5

The MOVEMENT AND INERTIA

Return

Only “static” existence of the universe, the omnipresent movement of the space loops sudden of the constraints which will lead us speed of the light to the gyroscope.

“The major internal relations of the objective world can be apprehended using simple logical concepts.”
(Albert Einstein, Letter with a rabbi of Chicago, 1939, in *Correspondence,* InterÉditions, 1980)

The movement of the relative particles is ceaseless

The total movement of the successive existences of nothing is necessarily null because it does not occur in a space, but “in” nothing, compared to nothing. For example a rocket plunged “in” nothing could always increase full power, it would not go more quickly than at “rest”. In other words, if vector-speeds of all the relative particles were projected on a date T on an unspecified directed axis, the algebraic sum of these projections would be null.

Yes, but here: a point moreover is created at every moment moreover. Movements occur permanently in a perfect balance, which thus changes permanently form.

The speed of the light in the vacuum

In a universe which counts a finished number of points and moments, speed cannot be infinite. Also universal it is, any movement is necessarily finished.

The successive existences of nothing create a point moreover at every moment moreover, which constitutes the greatest spatiotemporelle variation of the universe. However, null speed can constitute a more fast variation only that of the universe itself. The length of the space loops cannot thus vary of more than one point at every moment moreover. This speed limit remains constant whatever the relative speed of the reference frames from which it is measured. Let us admit that it is the constancy the speed of the light in the vacuum.

> The maximum speed indépassable of a point at every moment corresponds at the speed of the light in the vacuum. It is about a fundamental constant of the structure of the space time, which exceeds the framework of the only electromagnetism.

The photon indeed, has a null mass. The least impulse does not meet any inertia, it should a priori communicate to the particle of light an infinite speed. But nothing, obviously, can go more quickly only the universe itself, which regularly limits the “infinite” speed of the photon, whatever the reference frames considered. The speed of the light in the vacuum remains thus constant, whatever relative speeds of the reference frames considered.

There is an absolute, which is opposed to too surface “all is relative”.

The quantum of action

> The action is the product of an energy by a time.
>
> - The smallest possible action is a movement of zero point per moment.
> - While the greatest possible action is a movement of a point per moment, which corresponds at the speed of the light in the vacuum.

Between these two extremes (between zero point per moment and a point per moment) an infinity of intermediate variations are followed, like a point in two moments, a point in three moments,… a point out of N urgent. This variation takes place “in staircase” per whole spatiotemporelles units, i.e. by quanta. Let us suppose that it is equal to a multiple entirety

of the quantum of action H (with H, Planck's constant which connects energy E and frequency v of a wave: E = hv). To integers of points correspond indeed of the discrete variations of the movement of the space loops.

For example if a luminous flow drops gradually, it arrives one moment when it is reduced to individual quanta of light, with photons more or less spaced in time. The energy of each photon does not drop, the only thing which varies, it is the number of photons. The variator of a halogenous lamp thus makes lower the number of photons emitted a second, it does not make lower the individual energy of the photons.

These variations remain only quantified when they bring into play a very small number of particles relating - not only to the small scales. Beyond that, they are based in a blur which brings a certain continuity to the movement. But basically the quantification remains, whatever the number of relative particles concerned.

Inertia

More one massive object acquires a speed which approaches that of the light, compared to a reference frame galiléen (not accelerated), more increases the number of its constitutive relative particles which meet the limitation of a point per moment. The inertia of this object thus increases. It also increases with its mass, with the number of its constitutive relative particles. There increase still the number of its relative particles which meet the limitation of a point per moment. Inertia tends towards the infinite one when a massive object approaches the speed of the light: all its constitutive corpuscles meet the limitation of a point per moment. Impossible for him more quickly to go.

- Moreover, when a massive particle is locally at rest, or moving constant, its space bonds oppose relatively few movements and resistance to the movements of its 2# - 2 nonlocal environments.

- On the other hand, when its movement varies, its space bonds are opposed more or less to whole or part of the movement of its nonlocal environments. Its movement meets then an inertia with the causes mainly nonlocal. Any massive particle thus tends to remain locally at rest or moving constant.

- Space does not oppose resistance to what **follows its geometry passively,** that it acts a null or uniform speed, or of a body without mass.
- But it resists all that tends **to transform its geometry,** that it acts of an acceleration or a massive body.

“Optical” spatiotemporelle

Let us imagine now that a spacecraft sinks at an increasing speed, which approaches that of the light.

- **Space:**
  Opposite this spacecraft, and behind him, the space bonds oppose with more and more resistance the limitation of a point at every moment.
  Seen outside, to some extent the machine “is crushed” on space, it becomes deformed, it is flattened relatively more and more.
  Seen from the interior of the vessel, the general geometry of external space also tends it to contract. The depth concentrates more and more in a remote point. It deforms and it absorbs the landscape more and more.
  See small films of Relativistic Optics At the National Australian University.

- **Time:**
  If the traveller looks at his watch, it seems to him to function normally. It delays indeed as much as all the other processes of the vessel. But measured outside since a reference frame galiléen (let us say since the Earth), time on board seems to slow down more and more. All the space bonds which form the vessel indeed tend to adopt the undifferentiated speed of a point per moment in the direction of the movement, i.e. to solidify all their processes in progress.

Two examples of deceleration of relative time:

- The more one unstable particle approaches the speed of the light, the more it tends “to last a long time” before disintegrating. Its internal evolution “is limed” more or less and its time dilates relatively.
- In the same way, when the light enters a gravitational field, its space constraints increase, its relative time runs out more slowly. What results in a reduction in its frequency, it undergoes a shift towards the red.

If one of the twins, in the experiment of thought of Langevin, remains on Earth while the other operates a tour in cosmos at a speed close to that of the light, they measure each one paradoxically a duration different from the voyage. For example fifteen years were passed for the sedentary and only five for the traveller: after the voyage, a difference in ten years age separates them!

Moreover, the traveller cannot consider that there remained motionless, while the Earth improvised wandering planet. Inertia is opposed indeed to its movement with him, not with that of the Earth, when it takes off, when it makes half-turn and when it lands. The effects of the movement of the vessel compared to the Earth and the Earth compared to the vessel are thus asymmetrical. The two brothers do not move in the same way along the continuation of points.

This experiment of thought succeeds for the first time in 1975 a real experiment. Atomic clocks replace the twins: one remains on the ground while the other embarks on an aircraft for a succession of turns, during about fifteen hours. After the landing, the voyageuse clock delays of a handle of nanoseconds compared to its during: the experiment confirms the theory.

A spinning top provides another example of asymmetry between two reference frames. If one regards it as a fixed reference frame while it turns, then in fact the universe turns around it. Inter alia, it makes turn around it the Moon at a speed largely higher at the speed of the light. Nevertheless our satellite does not undergo any new acceleration then, it does not have to overcome any particular inertia: in the absolute the length of its space loops varies at a speed lower or equal to a point per moment. What “sees” the spinning top is an effect of the mutual prolongations of the space loops, which allow myriads from different points of view. It is basically only one succession of images. This visual effect does not have more existence than a continuation of reflexions in a mirror.

The space time plays it to us “optical variable geometry”. It does not deform the spaceships or the Moon, but the points of view, the space bonds from which the objects are observed. A kind of “rotation” of the four-dimensional space time (three dimensions of space plus one of time) varies thus according to reference frames'. What changes only the angles under which the objects are observed, not objects themselves. However the space changes are reversible, but not the temporal changes. A movement can be indeed propagated recent points towards older points. But at every moment, only exists only one moment, and the creation of the succession of moments always goes from an old moment towards most recent: impossible to retrogress, in the past, of going from one recent moment towards older. In the space-time continuum, time is not a dimension like the others.

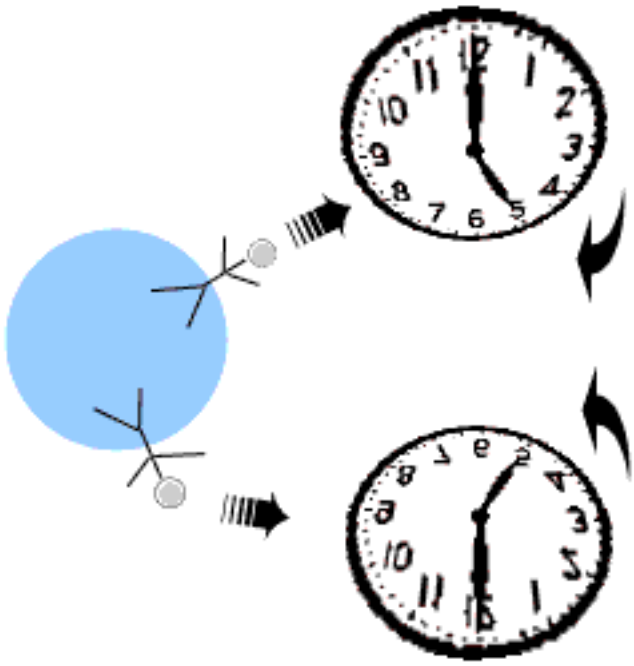
The space time is the resultant of a certain component count and the movement proposes such or such component at the detriment of other components. There is only one change of prospect, from point of view. We do not perceive the totality of reality. An opening which slips according to laws' of physics shows us such or such part of nature at a given time. But it hides us the main thing: the intrinsic coherence of the universe.

The principle of Mach

We are here in full “principle of Mach”, such as it was re-examined and corrected by Einstein. Nothing escapes universal spatiotemporelle topology. What occurs here and now depends entirely or partly on what occurs everywhere else in the universe. For example what occurs here and now depends on what compensates for the tendency to the gravitational collapse of the whole of the universal matter. This universal unicity melts the fact particularly that the laws of physics remain valid whatever the reference frames considered. The same event can be thus measured in several ways different, with respective the “points of view” related to several different reference frames. But these various measurements are equivalent, one is not more “objective” that the other: the event is simply observed under several different angles spatiotemporels.

While simplifying outrancièrement, we can say that in relativity the universal one conditions the room (principle of Mach re-examined by Einstein). While in quantum mechanics, it is the room which conditions the universal one (local reduction of the function of “spread out” wave universally).

The pendulum of Foucault illustrates the principle of Mach. A rather heavy weight is balanced at the end of a long cord, for example with the North Pole of the Earth. The hours are passed and the plan of the oscillation turns around a vertical axis. At the end of six hours the oscillation reached, then exceeds a plan perpendicular to the starting plan. The plan of the oscillation carries out a full rotation in twenty-four hours. It turns without visible cause compared to the Earth. But the observation shows that there remains fixed compared to the most remote galaxies, those whose apparent movement is weakest. The plan of the oscillation thus remains as stable as possible, not compared to the Earth, but compared to the whole of the universe. If the pendulum is moved towards the equator, the rotation of its plan of oscillation slows down gradually (a turn into 32. 52 min in Paris) until becoming null at the equator. Beyond that, the change of hemisphere reverses rotation according to the law of Coriolis: (seen over and by behind) “Any mobile on the surface of the Earth is deviated towards its right-hand side in the Northern hemisphere, and towards its left in the Southern hemisphere”. Seen by lower part, this deviation explains for example why the cyclones of the Northern hemisphere turn in the direction reverses needles of a watch, and those of the Southern hemisphere in the direction needles of a watch.



The pseudoforce of Coriolis:

- **Seen “by lower part” in a hemisphere,**
  a cyclone turns in a direction
- **Considering “over” in the other hemisphere,**
  it turns in opposite direction
  (Illustration: DCU)

This effect is too however much weak to determine the direction of rotation of the water which runs out by the siphon of a bath-tub. Other factors, like irregularities in the shape of the container, are dominating.

On the other hand, as a long time as the centrifugal force overrides the terrestrial gravitation, a gyroscope tends to preserve an axis of fixed rotation compared to the remote galaxies, whatever its geographical position, including at the equator.

The “secrecy” of the pendulum of Foucault, it is the conservation of energy. If the pendulum passed from the plan in which it is turning to another, it would need an impulse. However this impulse is not created spontaneously and the Earth turns. The result, it is that the plan of oscillation of the pendulum turns compared to the Earth. What delivers also the “secrecy to us” of the gyroscope. So that the axis changes direction, it would need a flick, which there still is not created spontaneously.

The movement is never as universal as in the absence of additional energy, when nothing disturbs it locally. It results from nonlocal and local components.

The COSMIC EXPANSION page 1

THE BIG-BANG

Return

At every moment create for themselves a new unit of space and a new unit of time.

At every moment this increase in the space time is translated in the absolute by the lengthening of a point of a space loop and in the relative one by the lengthening of a point of 2# - 1 space bonds. What involves the relative distance of 2 (2# - 1) relative particles.

The decoration being planted, let us see the beginning of film now.

“(...) if the laws of science had been suspended on the beginning of the Universe, why would they be valid at other times have? A law is a law only if it is always worth everywhere and. We must endeavour to include/understand scientifically how the Universe began: that we are able or not to conclude this task, we could not exempt ourselves to harness us there.”
(Stephen Hawking, *Universe in a nut shell,* Odile Jacob, 2001)

A ball of billiards “in” nothing

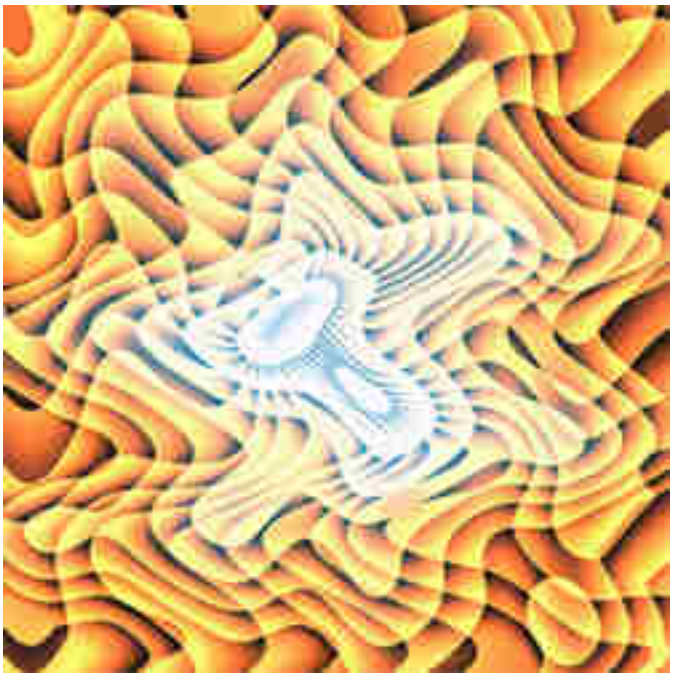
Let us consider a “space” with zero dimension: nothing. Nothing good complicated here since the corresponding geometry holds in only one commonplace axiom: *“When there is no space between two objects, these objects are in contact”*.

Let us imagine a ball of billiards plunged “in” nothing. It does not have external space, since “in” nothing, it is apart from space, it is nowhere. Thus not of external form. All the points of its non-existent “external surface” meet in the same point.

If the ball consists of points, then there are no difference between its specific “outside” and each one of its other constitutive points. Its “outside” is a point like another. In other words the whole (the ball without external space, or rather whose external space is specific) is paradoxically plunged in the whole of its parts (in its “interior”, in its points).

Since it does not have external limit, sight of the interior, it seems infinite. But its space closed on itself is in fact finished. No luminous ray leaves the ball, it always follows more or less curved ways of points. A little as an ant in ramble on the surface a sphere can believe to have an unbounded space around it, which is in fact finished.

Such a ball of billiards cannot exist as such “in” nothing. It has of “ball” only the name. It is possible to represent it mentally only like one whole of strange characteristics.



A ball of billiards
the form external is reduced to a point
is actually quite worse than that: -)
(Illustration: DCU)

The universe is him also plunged “in” nothing. Would be this only by definition: there is nothing beyond all that exists. This is why as of the first moments creates for itself a closed space, “buckled” on itself.

Geometry “in” nothing

At the first moment the universe counts one constitutive point: ●.

At the second moment the universe counts two points: ●●. That is to say two ends: appearance the length. But there is no space around the points since the points are themselves space. From the point of view of each of the two points, it is the other point which surrounds it. Creation thus of minimal space able to contain another of them: 2D.

At the third moment there are three points: ●●●**.** Three loops distinct from two points can “see” the same relative particle, which can thus simultaneously “be seen” under twice three different angles. The 6D spouts out in the 2D.

At the fourth moment●●●● six loops distinct from two points can “see” the same relative particle, which can thus simultaneously “be seen” under twice six different angles. The 12D spouts out in the 6D lately created.

At the fifth moment ●●●●● ten loops distinct from two points can “see” the same relative particle, which can thus simultaneously “be seen” under twice ten different angles. The 20D spouts out in the 12D…

Stop! What is being created there is a multidimensional universal crystal, with space bonds all of two points each one. No movement is possible there. Inconsistency: the creation of a point moreover at every moment moreover creates movement.

A space with more than three dimensions cannot be represented mentally, it can be only calculated. For example, according to Rudy Rucker, in the fourth dimension, Threshold, 1985, a cube 3D counts 12 stop and six faces, a hypercube 4D account 32 stop and 24 faces, while a hyperhypercube 5D account 80 stop and 80 faces.

Let us begin again. The universe ceases creating additional dimensions as soon as the movement becomes possible. Thus after the creation of two relative particles. Not as from

the second moment, where only exists a minimal loop deprived of relative particles. But as from the third moment.

Miss chance, at the third moment, the 6D is plunged “in” nothing. The universe is then divided into a relative space (intern) 6D and an absolute space (external “in” nothing, if one can say) ratatiné in a point. At the third moment no movement 6D (specific in the absolute) is thus possible. On the other hand, a movement 5D plunged in the 6D is possible. Since plunged in a space, therefore not “in” nothing, it ratatine not in a point.

In fact not, it is not possible. The 6D is always there and it mobilizes the three points. No movement is yet possible, whereas the creation of a point moreover at every moment makes from there creation obligatory.

Is a space 4D plunged in the 5D created? Not, because with their two ends, the space loops can form in the absolute only spaces with an even number of dimensions. A space 3D plunged in the 4D is thus created.

As of the third moment the universe thus will very plunge the 3D in a “vast” space for it: the 4D. Only movements with more in 3D, using such (S) or such (S) dimension (S), are possible.

This 4D volume ratatine him also in the absolute in a point, because of the absence external of space. But, even ratatiné, there remains very “vast” for spaces 3D. Exactly as an “ordinary” volume 3D height/width/depth are very “vast” for the 2D, since it can contain an infinity of plans. Even compressed at the bottom of a black hole, an unspecified volume 3D can always contain an infinity of curved spaces 2D. In this case the crumpled plans “do not realize” which they are at the bottom of a black hole. Their “inhabitants 2D” follow them glance and movement, they slip there and they live there: it seems to them that their plan is “flat”, Euclidean. The same applies with regard to the 3D plunged in the ratatinée 4D.

The hyperspace 4D thus allows the coexistence of various spaces 3D “fluids”. For example in same space ratatiné 4D a volume 3D height/width/depth can cut another volume 3D height/width/hyperdimension. The intersection of these two spaces however loses one of its four dimensions to preserve only three of them, without what it is ratatinerait. This ratatinement is indeed impossible in the relative one, since it would not preserve the movement, whereas creates for itself a point moreover at every moment moreover. We will further see the four fundamental interactions result from this strange topology.

Summary of the situation:

A unidimensional space in the absolute lengthens of a point moreover at every moment moreover. It divides of such kind into segments that it multiplies the points of view.

Creates for itself a four-dimensional space in the relative one, which is as ratatiné as the unidimensional space to which it is equivalent in the absolute. But it comprises two-dimensional and three-dimensional relative spaces, which them are not ratatinés in a point because not located elsewhere than “in” nothing. When they appear, the geometricians of these not ratatinés spaces will believe themselves in Euclidean spaces.

Complexity increases

At the first moments the microscopic and macroscopic scales merge. The space bonds have a whole a minimal length of two points, spaces essential to constitute the two ends of a unidimensional space. (Only one point, it is a volume without dimension.) On its side the maximum length is hardly greater than two points because the total number of points is still very small. The universe resembles thus a kind of crystal of relative particles, more or less uniformly spaced.

However a point moreover is created at every moment moreover, that is to say a unit of movement moreover. As of the second moment this regular “drop” of movement enters thus in resonance with the movement general. A new flick is added to each one of its own echoes. What creates waves of movement, interferences, disturbances, flows and backward flows quickly devastators for the original uniformity. The movement relative of the space bonds are different more and more. They become increasingly radiative, they draw and they push increasingly energy relative particles. A kind of fog of relative particles bubbles and becomes more and more complex on all the scales.

In this stir, the range of the scales widens, the propagation of the movement becomes more and more complex. Outer loops break up more or less into smaller, of the inner loops amalgamate more or less in larger. The space bonds are structured gradually. First subatomic particles, then hydrogen, its heavy isotope deuterium, helium, lithium, appear in the unfoldings of this chaos. The interstellar environment, the heart of stars and the explosions of supernovæ will synthesize the other elements later.

The creation of points and moments in a number growing creates at the same time increasingly large scales, where the addition of a point moreover at every moment moreover becomes more and more comparatively “negligible”. On the great scales the resonant movements always exist, but they are diluted more and more in the movement general. Increasingly complex structures thus manage to occur more quickly than they are destroyed. The cosmic temperature drops, but it rises locally with the formation of the galaxies and stars. On the other hand on subatomic scales remains the original stir. More or less a point indeed constitutes an important event in environments of some points.

Great and small scales are different more and more. Possible phenomena on a scale are not it inevitably with another. For example a statistical study shows that the stars cannot have a mass which exceeds 120 to 200 times that of our Sun (University of Michigan and Hubble site, 2005). The young universe very quickly offers to the various scales “landscapes” of a diversity comparable with that which we observe today.

This complexification of the movement of the space loops is accompanied by an increase in the geometrical configurations. The more one great number of states accumulate and the more improbable the return in a former universal state becomes. This former universal state becomes a possibility among a number growing of different. Thus more the scale of the universe increases, plus time passes, and more the irreversibility spreads. Moreover the creation of a point moreover at every moment of more prohibited any universal state strictly identical in a last state. Far from being a “eternal return”, the history of the universe is an eternal creation.

Primitive inflation

During the first moments the relative particles bind the ones with the others. However a point moreover is created at every moment moreover. When a loop passes from 2 to 3 points, its length increases by 50 %. The primitive expansion of the universe thus presents the aspect of a “inflation” because the length of the space loops increases with very high percentages. It is “explosive” when it is initially exerted on bonds on average cash some constitutive points, then it becomes comparatively negligible when it is cash exerted on bonds billion and billion constitutive points. Spatiotemporelles agitations tend overall to calm because the more there are points, the more the appearance of a new point has minor consequences on the length and the movement of the loops.

Introduced into the standard model of cosmology by Alan Guth, Andrej Linde and Paul Steinhardt, the model inflationnaire brings a speculative explanation to the Euclidean character of the geometry of the universe, like with the uniformity of the cosmic bottom of thermal radiation to 2,7 K.

Between T = 10-36 S and T = 10-33 S after the singular moment T = 0, a negligible area of the universe would have inflated in exponential proportions, giving our current universe.

The separation of the nuclear and electromagnetic interactions would have caused a transition from phase, a new balance between the matter and energy, in favour of the latter, from where appearance of a bubble which would have very included. Without what, limited by the speed of the light and the too narrow horizons, causality

could not give a universe as homogeneous as the observation indicates it.

This first inflation the second inflation apparently due to a “black energy succeeds”: this question will be tackled in the next section.

The emergence of a Newtonian nature

I.e. of a nature included/understood with a traditional realism, based on what our five directions perceive.

The more the universe increases its scale and the more the individual fluctuations of the relative particles hide in the small scales. The macroscopic objects thus acquire a more or less stable appearance, smoothed by the blur of at the same time microscopic movements and in very great number. A nature with physical laws “traditional” steps called yet appears little by little.

> One day will come where the size of objects called of the “billiard balls” will be gigantic. Their number of constitutive relative particles will be so large that their unfoldings will be able to dissolve multiple ways different among the other relative particles from the universe. Everyone will believe that they are single objects, unable to duplicate itself: -)

It will be necessary to await the advent of quantum mechanics and the discovery of the phenomena of intrication so that a number growing people in the same way do not look at any more the billiard balls.

Everywhere the same heterogeneity

During the first “simple” time which follows the big-bang, nothing is still well differentiated. The disturbances are distributed in a rather homogeneous way. This homogeneity gives a universal bath of particles, a general incandescence whose fossil bottom of thermal radiation preserves the trace still today. This paramount bottom of photons fluctuates very little, with more one hundred thousandths of degree, whatever the direction of the sky measured. What is appropriate well in a universe where all duplicates 2# everywhere - 1

time. With this detected bottom associate perhaps also a bottom of neutrinos and a bottom of let us revolve, not detected, which undoubtedly fluctuate them also very little, if they exist.

- Moreover, also thin are they in the beginning, the densest zones in relative particles exert a gravitational attraction on the least dense zones. Contrast between the zones relatively denser and less dense develops thus tendentially.

- The space bonds thus have increasingly diversified lengths. But their mutual prolongations duplicate them and mix them everywhere in the universe. What causes to distribute everywhere their irregularities, which are homogenized more or less on the great scales.

From where, with final, a general distribution of the matter in the universe, which is located halfway between the homogeneity and heterogeneity. On the greatest scales the galaxies draw irregular filaments thus, with the nodes of which the clusters are located, delimiting vast “bubbles” of vacuum, and this landscape is the same one in all the directions. In the same way, the relative luminosity of the galaxies can vary in great proportions, but to each level of luminosity a universal distribution of the galaxies concerned corresponds. For example there is everywhere the same weak rate of very brilliant galaxies.

In short, there is well heterogeneity in a universe where all duplicates 2# - 1 time, but it is same heterogeneity everywhere.

The COSMIC EXPANSION page 2

BLACK ENERGY AND MATTER

Return

After having given the big-bang, the creation of a point moreover at every moment moreover gives black energy.

As for the known matter, it represents only 4 % of the universal mass. 96 % remaining are “black”, unknown. As much to say that we have still many things to discover.

“The small history wants that when somebody came to find Niels Bohr with a revolutionary idea aiming at solving one of the enigma of the quantum theory in the Twenties, he retorted: “Your theory is insane, but it is not it enough to be true”.”
(John Gribbin, the *cat of Schrödinger, the* Rock, 1988)

Euclidean geometries pseudos

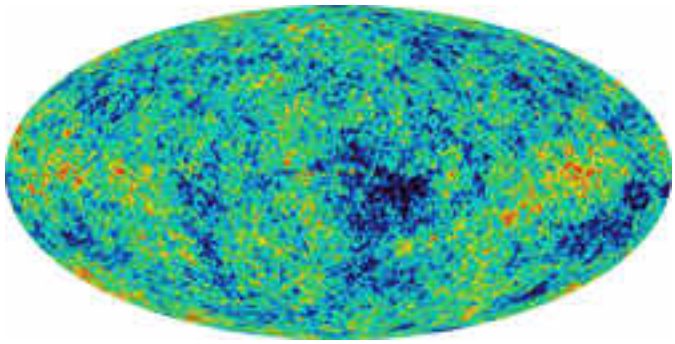
Unit 1 of matter density omega in the universe corresponds to balance between on the one hand universal gravitational attraction and on the other hand the kinetic energy of universal expansion. With a lower density or equalizes to 1, the expansion continues indefinitely. With a density higher than 1, the universe behaves like a stone launched in the air, “caught up with” by the gravitation: the expansion slows down, stops, is reversed and all ends up being crushed in a “big crunch”.

Whereas it will occur? The thermal radiation background in which the universe bathes gives indications on what is woven, on what the future of the universe holds for us.

After satellite COBE in 1992, the stratospheric balloons Boomerang in 1998, Maximum in 2000 and Archeops in 2001, the images of this bottom, collected by probe WMAP in 2003, constituted by their precision and their vast field an additional projection. The scientists have increasingly fine information thus, since the discovery of the bottom in 1965.

Why this bottom is carrying a message? From which does it come?

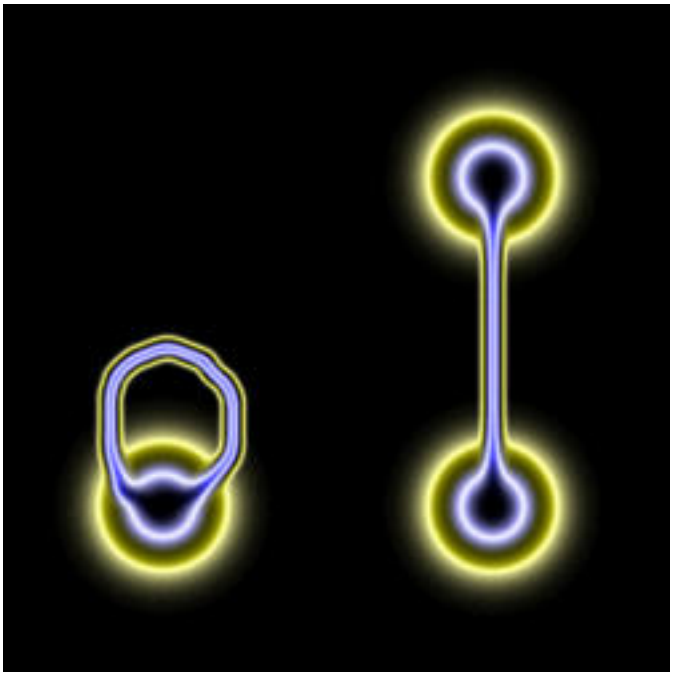
Some 380.000 years after the big-bang, matter and photons are uncoupled in a general incandescence. At this time, the temperature of the densest areas decrease less quickly than that of the least dense. A cosmic bath of photons of great energy thus carries the trace of the paramount inhomogeneousness, which while condensing, constitute the first galaxies then gradually. Then this bottom is diluted in the universal expansion and it cools.



The basic radiation of the sky
(Document: NASA/WMAP TEAM Science)

Weak variations of intensity, in this content of photons, arise typically with an angle (an apparent height or a width) of a degree. These fluctuations correspond to the maximum distance traversed by the light, during the creation of the bottom, within the framework of an Euclidean universe, to which the omega is very close to (or is equal to) 1. A space with a positive curve (spherical, the sum of the angles of a triangle is higher than 180°) would make converge the luminous rays and an effect of magnifying glass would enlarge the spots. While a space with a negative curve (hyperbolic, the sum of the angles of a triangle is lower than 180°) would make diverge the rays and would reduce the spots.

The observation of the fossil bottom of thermal radiation indicates as well as the geometry of the universe is (or is almost) Euclidean. I.e. it is located (or is located almost) at the point of balance between a universe early or late in process of collapse on itself, and a “hyperbolic” universe whose extent increases indefinitely.



This absolute particle is equivalent with two relative particles:
all depends on the adopted point of view
(Illustration: DCU)

Let us remember maintaining what occurs when observant located “in” a unidimensional space loop looks with the top of it. The light follows the curve of space and the observant one sees a second particle at the end of an apparently right space. Under these conditions, the total “flatness” of our universe “seen of the interior” is not really surprising. That our glance follows only one, or an astronomical number of space loops, the result is the same one: space seems to us overall Euclidean.

This space “flatness” in the relative one is an intrinsic property of the space curve in the absolute. An equivalence exists thus between flat” and “curved” spaces “: a unidimensional space is “flat” when it is considered “interior” and it is “curved” when it is considered “outside”. What does not remove anything with the existence local space distortions, when the gravitation curves the space time, for example. But the gravitation curves a three-dimensional space: the effects of the space curve are then partly different from those due to the curve of a unidimensional space.

The number of size constitutive of a space is him also relative. Two spaces 3D comprising each one a dimension that the other does not have “see” as spaces 2D because they cannot see the dimension which they do not have. If they “saw” a four-dimensional space overall, they “would indeed see it” located “in” nothing, where, in the absence of space between them, the points all are in contact between them, where all is ratatiné. On the other hand any space 1D, or 2D, or 3D, are “elsewhere” that “in” nothing, even if it is in a ratatiné space 4D. Such spaces can thus have in relative geometry which is not in total collapse. Considered in thought components of space 4D ratatiné, each one of these geometries to most three-dimensional appears nevertheless terribly crumpled. But seen “of the interior”, they appear overall Euclidean because they are basically unidimensional.

The trend lengthening of the space bonds cumulates with the distance

- That is to say a Cartesian diagram with space in X-coordinate and time in ordinate. A course of one centimetre at each second more gives a rectilinear, linear diagonal. However, in the absolute, the space time gains a point moreover at every moment moreover: the dilation of the space time is in the same way linear. The last point created lengthens the space time at a constant speed, equal to that of the light in the vacuum.

- But in the relative one, this point moreover at every moment moreover duplicates 2# - 1 time. I.e. the relative space time at every moment increments whole of {2# - 1} unfoldings of the last point created. In the relative one, the total dilation of the space time is thus it as linear, but 2# - 1 time faster as in the absolute.

Let us imagine a kind of rubber band which stretches centimetre spontaneously every minute. In one minute the length of an insulated rubber band increases obviously only one centimetre. While the length of a chain of five of these rubber bands, laid out end to end, increases by five centimetres. In same time, a chain of 100.000 rubber bands would lengthen as for it of one kilometer. Such a cumulative space effect creates the relative universal expansion. According to the size of the horizon considered, the average expansion goes from zero point moreover at every moment moreover, with 2# - 1 points moreover at every moment moreover. The larger one unspecified volume of space is, more necessarily it counts a high average number of space bonds which lengthen, more it tends to dilate quickly.

The speed of relative expansion of space increases thus linearly with the increase in the scale considered. The “recession of the galaxies”, like that of the clusters and the superclusters, follows the law of Hubble: the galaxies move away from/to each other at a relative speed proportional to their respective distances - is approximately 70 km.s-1.Mpc. This expansion is unperceivable in lower part of the scales of the galaxies: the gravitation “crushes it” and the objects “fall down” permanently the ones on the others. On the other hand, it becomes dominating on a cluster scale and higher scales.

But a point moreover is created at every moment moreover: the space loops tendentially lengthen, which makes tendentially their fractionation increasingly probable, therefore the increase in their number #. Not only the volume of the universe increases with time, but in more the speed of recession of the galaxies also tends it to increase with time.

What confirms the observation. Star explosions at the end of the lifetime, the supernovæ, have a known luminosity intrinsic, which allows an estimate of the distance which

separates them from us. With the remote gleam of these explosions, it seems that the expansion of the universe accelerates with time. The “constant” of Hubble is in fact a variable which increases with the wire of the history of the universe.

This “black energy” creates the second inflation (after that which followed the big-bang).

A general dilation of space

With the borders of the visible universe space dilates so that it carries the clusters at speeds which seem to reach the speed of the light. So that a massive object reaches the speed of the light it would need an infinite energy. But there, no need for infinite energy since that no inertia is to be overcome: it is not a question of a displacement **in** space, but of a general dilation **of** space.

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No “center of the universe” exists

The center of the universe is everywhere where there is a relative particle. The universal expansion takes place around each relative particle: there is not “universal center” privileged. Our perception of the expansion of the universe is universally banal. The universe “does not explode” not and the galaxies are not “projectiles”: their movement of escape comes only from the general dilation of cosmic space.

The visible universe is distinguished from the current universe

> **The speed of a point per moment is an insuperable limit in the absolute. The relative one doesn't it carry this limit to 2# - 1 points per moment? Let us consider for example a succession of five space bonds which individually lengthen point moreover at every moment moreover. It at every moment causes a total lengthening of five points, that is to say five times the speed of the light.**

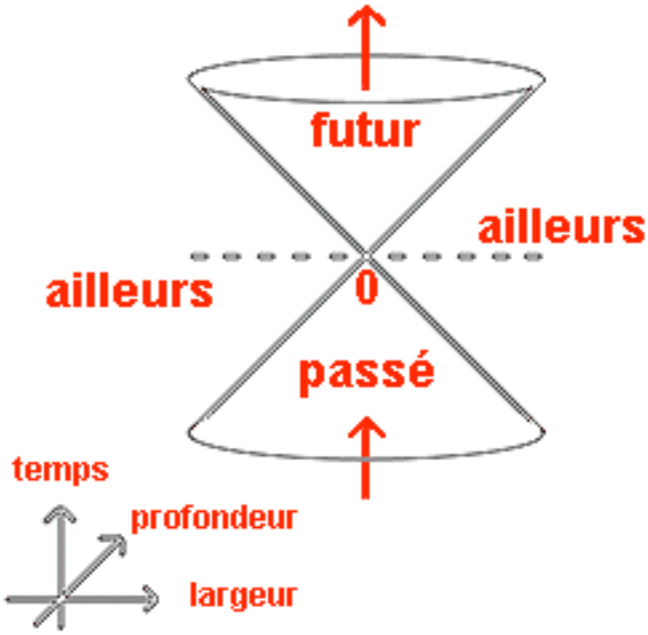
Each relative particle “sees” a horizon of which the length varies at more than one point at every moment. It receives, it transmits information to more at this speed. There exists thus around the 2# relative particles of the universe 2# particular horizons. What saucissonne
~~~~~~~~~~~~~~~

the problem so that speed is limited everywhere to more to one point per moment, even in the relative one. And what corresponds to the absolute, where nothing exceeds the speed of a point moreover at every moment moreover.

This is why the ray of the visible universe is lower than that of the current universe. When we observe a remote galaxy, for example located at ten billion light-years, we see it where it was there is ten billion years. But since it emitted this light, which put ten billion years to reach us, the universal expansion continued to involve it in its race.

Information which comes to us of the borders of cosmos is not the first freshness, since they travelled during several billion years. *The current* borders of the universe are thus hidden to us. For example the quasars are undoubtedly very luminous primitive galaxies, whose central black hole is shredding and to absorb all stars with its range: it did not make the vacuum around him yet. The more we observe remote galaxies, the more we see them in a primitive state, with a all the more fixed relative time as their relative speed is large compared to us. But locally, they imperturbably continue their relative movement of escape. They more or less changed, compared to what see we.

We cannot receive information with but at the speed of the light. From where the causal cone of light which surrounds any event:



The cone of light of the event located at item 0

The more distant the causes or the effects of an event located at item 0 are for him in time, the more they can be distant in space.
“Elsewhere” is located temporarily beyond a zone “covered” by the speed of the light.
(Diagram: DCU)

Information it also is duplicated

The current ray of the universe is higher than that of the visible universe. To observe what occurs beyond our horizon from visibility, it would thus be necessary for us to lay out of information which reach us at speeds higher than that of the light… or at a null speed. Perhaps a day will be us able to detect and assemble like puzzles the duplicated fragments of images, which, via the nonseparable interactions, reach us “on line” of all the events of the universe, whatever the distance which separates them from us. Perhaps a day we will walk our virtual cameras in the middle of very remote worlds.

And reciprocally: the images of the Earth such as it is currently duplicate they also everywhere in the universe. Here are which pushes imagination with cosmic vagrancies. Perhaps let us be us all examined in real time by remote extraterrestrial civilizations…

> On the planet Ground, certain bipeds wrap the end of each one of their two lower limbs in a small woven bag than they call “sock”: -)

Voyages in the images of space, therefore, but also in those of time:

Any phenomenon permanently generates an image, which moves away from its source at the speed of the light. For example at 2500 years lights of us the Earth appears such as it was 2500 years ago. It is impossible to catch up with this image, because it would be necessary for that to go at a speed higher than that of the light.

On the other hand this image which moves away duplicates and it comes from everywhere where there is a relative particle. Admittedly, these duplicated images are mixed with different multiples unfoldings and echoes, they are extremely diffuse. Nevertheless, perhaps will manage one one day to detect, select these unfoldings. To see documentary turned histories “naturally”, without camera. If such a technology were possible, we would have files to which nothing would miss, allowing to explore the everyday life, like the great events of the history. We could however nothing change past, we could only observe it.

I believe that the future generations will live in a total transparency of space and time.

Imperceptible “a black matter” seems mixed with the ordinary matter

When a galaxy is formed, it is initially a mass of gas which turns on itself. The centrifugal force tends to flatten it like a pancake. The gravitation condenses this gas, which warms up, of the hearths nuclear ignite. The ray of the galaxy decreases, which increases its number of revolutions because of the conservation of the orbital kinetic moment.

After formhaving been thus formed, the local primitive galaxies are incorporated more or less between them. They end up giving the objects which we observe now. They continue nevertheless to change, because they rather frequently enter in collision between them. For example the Milky Way and the galaxy of Andromède are in free fall one towards the other; they should be passed very close to and become deformed mutually in some three billion years, first movement of a ballet in which the collisions between stars and planets are rather not very probable thanks to the immense vacuums which separate them - the effects of tide will be much more frightening.

However the orbital velocity of the plan of the galaxies remains quasi constant with the distance of the centre of rotation. The curve of rotation of the galaxies, which expresses the mean velocity of rotation of each point of the ray, is quasi horizontal. Whereas, according to the laws of the gravitation, this curve should appreciably drop, as speeds of revolution of planets of the solar system drop with the distance compared to the Sun (to a less attraction a less speed of revolution corresponds indeed). At the speed to which the galactic objects turn, and taking into account the mass of their visible constitutive matter, the galaxies should eject their periphery in cosmos and disaggregate. But they remain intact. The same phenomenon is found on higher scales: those of the clusters. The galaxies turn the ones around the others at speeds such as they should disperse in cosmos. But the clusters preserve them also their cohesion. The real mass of the galaxies, like that of the clusters, thus seems higher than their apparent mass. It is a priori this hidden surplus of mass which allows the galaxies and the clusters to retain their periphery.

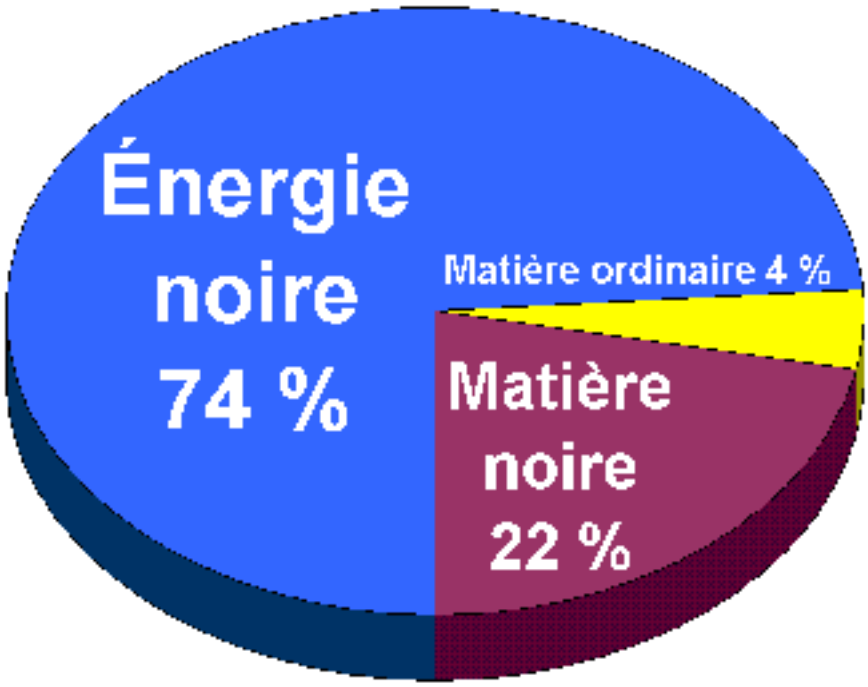
A cosmic vestige of the primitive cocoon in which the first galaxies were formed would still remain in the shape of an extremely diffuse and hot gas. Its general form would evoke that of a fabric irregular 3D and its temperature would range between a hundred and thousand and one million degrees Celsius. The mass of these clouds would explain part of the missing mass. But in the current state of research, the call to a undetectable black matter seems always necessary. For its part the Milky Way contains vast cold gas clouds, made up mainly hydrogen, which wrap the dense zones rather. The satellite GLAST, whose launching is envisaged in 2007, will allow us more. These clouds, not easily detectable because they are either very hot, or very cold, partly explain the paradoxes of the rotation of the galaxies and the clusters - partly only.

Without the DCU not of hello. Each known matter particle duplicates 2# - 1 time everywhere in the universe. A formed ordinary matter bathes thus in its own unfoldings, which constitute a bottom of very diffuse relative particles, very homogeneous, which does not radiate. This bottom concentrates rather in and around the large matter clusters, under the effect of the locality. But there exists everywhere with a more or less great density.

The “black matter”, they is thus at least partly more or less local matter unfoldings. It is about a particular state of the ordinary matter, which is added to the already known states.

Famous figures

According to the data coming from satellite WMAP in 2003, the accelerated recession of the galaxies intervenes for 74 % in an omega very close to the unit. This “black anti-gravitation” is an energy which has an equivalence in mass: it contributes “to crush” the geometry of the universe. But that is not enough yet to form a “flat” universe, Euclidean. The black matter contributes for its part to 22 % of the universal mass and the ordinary matter (baryon) represents only 4 % of the total.



Contents of the universe
(Graph: DCU)

Why the atoms exist do?
Eh yes, in metaphysics one can pose this kind of question!

Section 7

DUPLICATED INTERFERENCES page 1

NEGATIVE ENERGY AND ATOMS

Return

Negative energy intuitively becomes conceivable with the unfoldings of the propagation of the movement. Its interferences with positive energy create the atoms.

"The *general solution of the equation of propagation* - with a dimension - is written like the *superposition of a travelling wave,* of an unspecified form, *being propagated in the direction of X increasing and a travelling wave* of an unspecified form *being propagated in opposite direction.*"
(Bernard Diu, Benedicte Leclercq, *word for word physics,* Odile Jacob, 2005)

Quid of negative energy?

When a particle has a momentum equalizes to zero, its energy E is equal to mc2. When it has a momentum p, the equation becomes:

$$E2 = m2c4 + p2c2$$

E2 being a square, energy can thus be either positive, or negative. Positive energy, we know what it is: it is what makes it possible a non-linear system to provide a mechanical work. But how to represent us mentally negative energy?

Negative energy duplicates positive energy

So that a face of waves is tightened around a stone thrown in water, it is necessary to film the event and then to pass film to back. It is thus necessary to go up the course of time, to observe the effects of negative energy.

The distinction positive energy/negative energy however does not seem to exist on a particle scale. The equations of the movement remain indeed valid there, whether the course of an unspecified microscopic event is considered at the place or back in time. For example, a molecule “would not see” any disadvantage to take part in the reconstitution of a broken egg.

> However the relative particles transmit movement, energy. This movement is duplicated and these unfoldings are propagated in all the directions, including worms the transmitting particles themselves. This duplicated movement is, for the transmitting particles, equivalent to positive energy which goes up the course of time. It is equivalent to a form of negative energy.

Let us consider two structures of particles relating to the synchronous movements, which duplicate the same space loops. They locally exchange “intermediate movements” which are propagated and cross in a traditional way periodically. Each one of these two structures thus emits positive energy. But it receives also an energy which comes from its local unfolding, of the equivalent of itself. It emits an energy “which did not travel yet”, while it receives a somewhat degraded energy, “which travelled”. All the structures of relative particles receive kind their energy negative like echoes, which interfere more or less tardily with each one of their movements.

To this “traditional” propagation which moves locally gradually, is added the nonlocal propagation. In this case received energy is not or is degraded little.

However any movement of a space loop in the absolute duplicates 2# - 1 time in the relative one. This movement is thus propagated 2# - 1 time by local and nonlocal ways. Each one of these unfoldings is superimposed, interferes more or less with the 2# - 2 others. Follow of the successions of crossings of more or less local movements. The propagation of energy thus often shows periodic characteristics, with more or less important alternations of movements. Thus for example the shock waves, the sound or the light are propagated.

Atoms

When an unspecified event emits positive energy, it thus returns to him locally 2# - 2 echoes more or less differed from its movement. From its clean “point of view” each emitted movement is positive, while each received unfolding is for him negative, since for him they are propagated like “with back in time”, they go from the horizon towards him. A central source of positive energy is surrounded thus of multiple relatively negative returns, more or less late, creating multiple interferences.

If the positive source is a proton, then the cloud of interferences which surrounds it tends to create an undulatory object made up including negative energy: an electron orbiting in a probabilistic way on its possible layers. No limit separates really an electron from its layers, of its standing waves. We find here the structure of the most abundant element of the universe: the hydrogen, which comprises a single proton surrounded by a single electron. Nature does not remain about it there. The atoms are different from/to each other by their atomic number Z of protons (and of electrons). With the last news, the classification of the chemical elements counts 118 elements, but only 116 were insulated.

- The negative echoes and their interferences locally are spread out than their positive source. The size of the whole of the atom is thus approximately a hundred and thousand times higher than that of the core.
- They are as weaker as their positive source, which explains the relative weakness of the mass of the electrons compared to the mass of the protons: 1836 times weaker. The electromagnetic interaction, which connects the electrons to the core, is for its part hundreds of times weaker than the nuclear interaction, which maintenance the cohesion of the core.
- Nevertheless the charge is comparable to a deformation of its local geometry. This deformation is duplicated including in the local perimeter of the atomic nucleus. The negative echoes cross these unfoldings, which they undergo in priority because of locality. From where equality in absolute value of the loads of the proton and the electron.

The false one calms neutron hides nonnull components of movement. When a proton receives at least proton close as much to energy than it emits positive energy, it is transformed into neutron. This “neutral” superposition remains stable only in one environment where the neutron receives at least nearby proton an energy nearly identical to that which it would receive if there had remained a proton. In this case its movement is cancelled more or less and its negative echoes are quasi non-existent. But when a neutron is insulated, its negative echoes reappear, it (Re) is transformed into proton, it disintegrates in 920 seconds. During a beta decay, the neutron breaks up thus into a proton, an electron, and a parasitic interference: a antineutrino.

Moreover the atomic nuclei most stable have remarkable numbers Z of protons or NR of

neutrons: 2, 8, 20, 50, 82, 126… What suggests the existence in their centre of a constructive phenomenon of “saturation of layers” similar to that of the electron shells. The interferences between the positive and negative waves, the unfoldings of space bonds inside the atoms, create repetitive geometries indeed. When a reason exists some share, it can be possibly supplemented with one or more reason (S) different (S), but the zone “is saturated”. The reason can only be repeated with identical a little further. In the world of the atoms, the orbits are more of the fractales than stackable quite smooth curves ad infinitum.

Antimatter

Not only negative energy interferes with positive energy, but in more it creates its own negative energy, which reinforces initial positive energy. This new positive energy gives a new negative energy, which it even… And so on in a more or less quenched oscillation. The negative one of the negative cost indeed to the positive one.

All kinds of interferences are created thus everywhere, permanently, even in empty spaces. On microscopic scales indeed, a space empties does not remain it a long time, because each one of its space bonds duplicates 2# - 1 time everywhere in the universe. Local fluctuations with the nonlocal causes thus appear in the vacuum and they interfere between them.

In a specific way, the movements of the relative particles are opposed or are reinforced so that they unify: space loops amalgamate with close loops. A loss of relative particles follows, associated with a gushing with movement. Thus create for themselves “disappeared particles” which continue to receive negative energy. They are antiparticles to the loads opposite of those of the initial particles. But all the identical particles do not disappear thus locally. Pairs particle-antiparticle virtual, fugacious, interact thus more or less in the quantum vacuum with the other local particles if there is, before being destroyed. This annihilation creates a more or less chaotic movement which can involve the division of at least a space loop in at least two other loops. What creates “spontaneously” new particles in an even number, carrying what remains local movement.

Local space curves create the loads of the particles. Certain deflections result in attractions, others by repulsions, others still by neutrality. This question will be tackled in the section devoted to the four fundamental interactions.

The particles have positive or negative loads and their respective antiparticles of the loads of contrary signs. To any particle an antiparticle corresponds. When a particle is in the presence of its antiparticle, they constitute a unit whose loads are null: they

lose their individual characteristics, they are destroyed, but their initial energy is preserved in the final state in the form of a movement communicated at the particles surrounding, already existing, and/or in the form of a creation of particles carrying movement.

A neutral particle, whose loads are null, like the photon, Z0 or the pi0, is its own antiparticle.

As opposed to what one could believe, negative energy with it only does not give antimatter. Associated positive energy, with which it interferes, it gives basically only matter. The creation of antimatter is fortuitous, specific. This is why the matter prevails largely in the universe, with the detriment of the antimatter.

Matter and antimatter are not completely symmetrical. For example in 2004, in Stanford Linear Accelerator Center, in California, the BaBar experiment showed a frequency of disintegration of the meson B exceeding of 13 % that of anti-B meson.

This asymmetry constituted one of the major events of the universe, little time after the big-bang. Thanks to it indeed, all was not destroyed. The universe is not limited to only one space loop and two relative particles…

Three families of particles

There are three similar families, but not identical, of particles. To the quarks of “savour” U and D of the first family correspond the quarks C and S of the second family, and T and B of the third family. To the electron of the first family corresponds in the second family a more massive electron, the muon, and in the third family an electron even more massive, the tau. To the electronic neutrino corresponds the muon neutrino, then the tau neutrino. The first family gathers the ordinary matter and the two others a matter more massive, unstable, which disintegrates quickly as regards the first family.

On a particle scale, the geometry of the space bonds is indeed more heterogeneous than on our human scale. Three-dimensional space does not exist there in a single and pure way. Unidimensional, two-dimensional and three-dimensional spaces mix with all the more heterogeneity which the scale considered is small.

When a particle finds a stability in a certain geometry, its negative energy returns to him with three different geometries. His, more two others, creating two “chimerical” versions of

itself. Two “families” of deformed and unstable interferences follow, whose space distortions attract the geodetic local ones, which brings a relatively important mass to them.

Each particle is thus in a superposition of states of the interferences of the three families. One of its three faces masks the others according to the local context.

The waves of relative particles lay out of more than freedom of movement
that relative particles themselves

Section 7

DUPLICATED INTERFERENCES page 2

The FORMLESS STATE AND WAVES OF RELATIVE PARTICLES

Return

After the waves and the interferences of the preceding page, here of the waves. A wave, it is a wave here, with the concept “of formlessness” moreover.

Each relative particle is connected spatially to each 2# - 1 other relative particles, which strongly constrained its sphere of activity. However the freedom of movement in the universe seems quasi unlimited. The waves of relative particles explain this paradox.

“The essence of this new model is that, here, the electron is included/ understood through a total whole of sets impliés generally nonlocalised in space. At any moment given, one of those perhaps developed and thus located, but at the time following this one inveloppe to be replaced by that which follows. The concept of continuity of existence is approached by that of a very fast recurrence of similar form changing in a simple and regular way (rather as a wheel of bicycle turning quickly the impression of a solid disc gives rather than that of a sequence of rays in rotation). Naturally, the particle is in its base only one abstraction which is manifest with our directions.” (David Bohm, the *plenitude of the Universe, the* Rock, 1987)

The Great Wave Off Kanagawa (1823-29)
(Reproduction: WebMuseum)

Team spirit

Does the water broad constitute the waves which arrive on the beach? Eh well not. The movement is different from the matter which carries it.

- When a movement of vagueness is transmitted to water molecules, these last describe vertical ellipses which form the wave. I.e. the water molecules remain more or less at the same place. The vague master key, then the molecules wander more or less locally. Until close molecules transmit to them the movement of following vagueness.

- The electrons, which carry a signal in a driver behave in a similar way. The signal is propagated at the speed of the light, but the electrons themselves walk on very slowly.

- Another example: arms of the spiral galaxies, which are waves of density. The stars do nothing but pass by the arms, where their trajectories concentrate them more than outside. The movement of the arms is thus much slower than that of the stars which constitute them.

The water molecules, like the electrons or stars, thus show fantastic “a team spirit”. A great number of units manage together to propagate variations of a considerable size compared to their individual scale. The transmitted movement changes carrying elements constantly.

In the same way, the displacement of a body takes place by a succession of assemblies of

its constitutive, immediately followed relative particles separations and reconstitutions with other relative particles. The relative particles make they also proof of fantastic “a team spirit”. Let us see that more closely.

The formless state

So that an unspecified object exists in a “formless” state, it is necessary and it is enough that exist its components. The latter can be assembled or disassembled, entirely or partly.

The relative particles are they also components.

The “formed” state is not as well as a characteristic of the formless state.

For example such awake-morning exists formed. Dismounted, it continues to exist in a formless state. Even reduced in dust dispersed with the wind with the top of the ocean, it will indefinitely continue to exist in a formless state.

On the other hand the text of a novel does not exist in a formless state in a dictionary. Or then it is about a very particular work which does not use the same word twice.

We already approached without naming it this concept of formlessness, when it was question of the parallel universes, in the introduction. Each universe was formed compared to itself and formless compared to the other universes. Each universe, as relatively formed universe, contained all the others, but at the formless state.

Any object duplicates 2# - 1 time: it thus has 2# - 1 formlessnesses

Each space loop is a kind of local environment to it only. Its length generally differently varies from that of the other loops and it “sees” absolute dimension according to a single point of view. However # space loops are prolonged mutually, they combine between them multiple different ways. What with final gives myriads and myriads of different local environments, on all the scales.

All is duplicated everywhere, but is assembled everywhere differently. And the same

differently mixed ingredients can give very different things locally. For example the passage of a small quantity of water of the state formed in a formless state by electrolysis causes an important change of its local characteristics.

A strong probability exists so that an object formed in an unspecified environment duplicates 2# - 2 times in 2# - 2 formlessnesses everywhere else in the universe. For example it is not because there is some share an engine with vapor that there is 2# - 2 engines with vapor disseminated everywhere else in the universe. 2# - 2 unfoldings of the engine formless, are more or less finely mixed with the other relative particles with the unit with the universe.

The more one object counts constitutive relative particles, the more it counts possible formlessnesses. The number of possible permutations of a number N of elements is indeed equal to factorial N! N, is 1 × 2 × 3 ×… × N: it increases exponentially with the increase in number N of elements. On the other hand structures cash a number of constitutive relative particles rather small can at the same time exist more or less formed in at least two places.

Let us imagine for example that one of the 2# - 1 formless unfoldings of a soccer ball is disseminated in the lunar ground. While falling on the Moon a meteorite crushes only some of the duplicated relative particles of the balloon, whose terrestrial version does not stumble. On the other hand it is possible that one of the electrons of the terrestrial balloon is agitated suddenly when fall the meteorite on the Moon. This electron has a relatively simple structure indeed, it is possible that there exists in a state more or less formed at the same time on the Moon and the Earth. (A space bond the length varies on the Moon, it is also 2# - 2 other bonds of which the length varies in an identical way everywhere else in the universe, since 2# - 1 bonds duplicate the same space loop.) Only of very banal here: the electron of the terrestrial balloon does nothing but undergo one quantum fluctuation, whose cause is nonlocal.

Also let us notice that the terrestrial balloon, like the pinches of lunar ground corresponding to an unfolding of its relative particles, exist locally in a formed state. The balloon is the nonlocal formlessness of the pinches, and reciprocally. Any formlessness is relative, it depends on a local reference frame, “point of view” of its environment. An unspecified object thus has a “complete” form which is the superposition of its 2# - 1 formlessnesses. What corresponds to the superposition of each “point of view” of 2# - 1 different environments.

Also appear “spontaneously” in the quantum vacuum of the myriads and the myriads of pairs of subatomic particles “virtual”, with loads of the contrary and more or less fugacious signs. Under the action of a or not local local event, these particles pass the formless ones to formed in the quantum vacuum, before becoming again formless.

There is no limit with the dispersion of components. The whole of universal formlessnesses basically constitutes a kind of gas fluctuating of relative particles.

Waves of relative particles

> The undulations of the wind on a corn field cross long distances, whereas the plants remain enracinés. In the same way, the same whole of particles relating to the small degree of freedom briefly forms the successive parts of movements whose scale exceeds it more or less. The body moving, or rather one of its unfoldings, exists for the same whole of particles relating to the formless state before its passage; there exists in a state formed during its passage, then it turns over at the formless state after its passage. It is not so much the body itself which moves, that its formed state. Such a displacement constitutes a wave of relative particles.

The "*very fast recurrence of similar form* is found here *changing in a simple and regular way"* of David Bohm, to see the quotation located in top of this page. For example the same whole of relative particles can constitute fragments of engine successively, then fragments of each coach. When the train passed, this whole of relative particles reconstitutes air.

It goes from there thus from all that exists on a scale higher than that of the relative particles. Any movement is a succession of formlessnesses which are done and are demolished. Of course, more the scale considered is large, more in comparison the "jerks" are small. It arrives one moment when the discontinuous character of the movement, of energy becomes negligible: emerge then the macroscopic world.

On all the scales, myriads of waves of relative particles carry the most various movements. The same wave can thus carry whole or part of the movement of multiple subatomic particles at the same time. A little as a membrane loudspeaker can be carrying the simultaneous sound of multiple musical instruments.

THE FOUR INTERACTIONS page 1

GENERAL

Return

In the four-dimensional space “outside ratatiné” in a point “in” nothing, only of the structures of space bonds cash to more three space dimensions can extend. Result from this restriction the nuclear gravitation, magnetism and the two interactions.

“It is discovered, at the same time starting from the consideration of the direction of the mathematical equations and the results of the concrete experiments, that the varied particles must be taken literally as projections of a reality with higher dimension which can be reported in the terms of no force of interaction.”
(David Bohm, the *plenitude of the Universe, the* Rock, 1987)

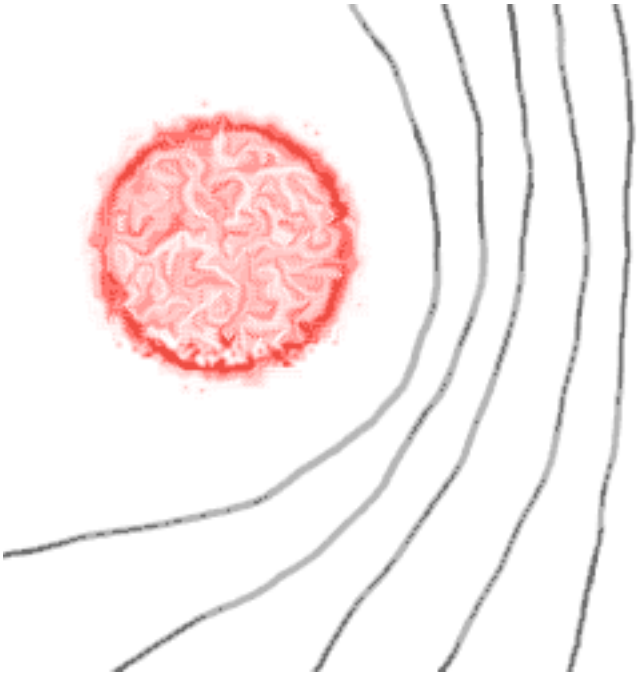
With each interaction its particular geometry

A point moreover is created at every moment moreover since the big-bang. This general accumulation of points, moments and space loops complexes the unidimensional geometry. It creates in relative united “point of view”, superimposed, numbers some growing. What gives a very great variable number of movements, in a very small constant number of spatiotemporelles size.

The movement of the relative particles appears simultaneously under as many different angles there are of different size. However the energy of the relative particles, therefore (E = mc2) their inertia and their mass, depend on the frequency of their movement and their

relative speed. The mass thus appears to us it also under different angles. Mass in 1D, 2D, 3D… exists, but not in 4D plunged “in” nothing, where all ratatine “outside” in a point.

The movement in the unidimensional absolute of the relative particles is translated in with more three space dimensions by variations in the superimposed points of view. On all the scales these accumulated variations create distortions in the space time: the “geodetic ones”. From which the four fundamental interactions result. Each interaction is a whole of geodetic clean with a particular geometry.



The gravitational field of a star
deviate the geodetic ones of local space
(Illustration: DCU)

The intrinsic properties of the space time change in the vicinity of a mass: the space time is curved, which deviates the trajectories locally. To some extent the object goes straight in a curved space, where it follows the way of less resistance. Such geometrical variations create the fundamental gravitation and the three other interactions.

Theodor Kaluza was on the good way

- The co-ordinates necessary to locate a point indicate the number of dimensions of a space. For example one needs two of them to locate a point on a surface: a surface is thus a space with two dimensions.

- Relativity adds a temporal co-ordinate to a three-dimensional geometry of curved spaces (riemannienne). It thus basically homogenizes space and time in a four-dimensional space-time continuum.

Theodor Kaluza,
teacher in Kiel, in Germany, in 1929
(Reproduction: Peter F. To summon)

In 1919 the German mathematician Theodor Kaluza recomputes the equations of general relativity in metric a riemannienne with five dimensions (four space dimensions and temporal). To the traditional space time with four dimensions the fifth invisible dimension is added. The gravitation in this space time in five dimensions, projected in our space time in four dimensions, gives again the gravitation plus electromagnetism (as well as an abstracted “expansion”, an additional field). I.e. gravitation described by relativity in a space time with four dimensions, to which electromagnetism is added described by the Maxwell's equations. The equations of general relativity concerning the gravitation on the one hand and the Maxwell's equations concerning electromagnetism on the other hand, appear thus as symmetrical expressions within the framework of the same fundamental geometry with five dimensions of space time. The quantum properties (discrete) of the matter on microscopic scales are unfortunately not with go of this unification, which however precedes the theory of the cords. Moreover there are not only two fundamental interactions, but four: the weak interaction and the strong interaction were discovered since.

The theory of the cords makes vibrate thread-like particles in a space time with ten or eleven dimensions. But the cords are not space bonds since they vibrate *in the* space time, where their movements describe “surfaces of universe”. Whereas the space bonds *are the* space time. In the theory of the cords the phenomena occur in a perturbative way

in a preexistent space time, quasi static. Whereas here, they emergent of a dynamic space time. Moreover, the length of the cords is limited on microscopic scales (10-33 cm), whereas that of the space loops extends on all the scales. The logic of the cords and that of the space loops are different.

The alternative variations length of the space loops hold nevertheless place of vibrations. Certain aspects of the logic of the cords are thus transposed to the space loops.

- Because of equivalence masses - energy, the vibrations of the cords, like those of the space loops, create the various particles.
- The modes of vibration concerned produce for their part the characteristics of the particles.

Only an additional “hyperdimension” is here necessary so that a symmetry between the four fundamental interactions appears. To our three usual dimensions height/width/depth, which explain the essence of the gravitation, are added the fourth space dimension, which allows the coexistence of the three other interactions. It is about an updated and metaphysical development of the basic ideas of Theodor Kaluza.

With hair “in” nothing

We point out the commonplace axiom of the geometry “in” nothing, seen in the section devoted to the big-bang. *“When there is no space between two objects, these objects are in contact”*. Since there is no space outside a ball billiards plunged “in” nothing, all the points of its surface meet in the same point. The ball is then one cannot ratatinée.

Only a system with hair “in” nothing undergoes the effect “geometry in nothing”. So at least an additional dimension equips it, then the effect “geometry in nothing” disappears. In this case the billiard balls become again spherical. It is what justifies the restriction according to which in four-dimensional space “outside ratatiné” in a point “in” nothing, only of the structures of space bonds cash to more three space dimensions can extend.

With its duplicated sets of space bonds, the space time constitutes a fabric which changes more or less at every moment. Myriads of geometrical configurations imbricate the ones in the others. But “in” nothing all is not therefore possible. Any geometry cash a number N of dimensions cannot comprise structures which extend and evolve/move only if it itself is

plunged in another geometry, which comprises a number higher than N of dimensions.

However space that we observe around us, on the one hand is three-dimensional, on the other hand is fluid. If our three-dimensional space is not firmly ratatiné, more ploughed up on itself than the center of a black hole, it is that it is located elsewhere than “in” nothing. Thus in a space vaster than itself, which saves the effect to him “geometry in nothing”. This vaster space, it is a space with four space dimensions, component of a space time with five dimensions.

Four dimensions and four spaces 3D

How much subsets 3D a 4D unit does it comprise? The very simple formula which makes it possible to calculate the tri number of possible triplets for N distinct elements is:

$$trin = [N (N - 1) (N - 2)]1/6$$

There thus exists for 4 dimensions:

$$tri4 = [4 (4 - 1) (4 - 2)]1/6$$

That is to say 4 subsets 3D for 4 space dimensions.

There exists indeed:

- height/width/depth
- height/depth/hyperdimension
- height/width/hyperdimension
- depth/width/hyperdimension

It is enough to add only one dimension to our three traditional dimensions height/width/depth, to obtain three additional three-dimensional universes equivalent to ours! Swept at the beginning of this talk, do the parallel universes thus return in force? It seems that yes. Impossible indeed to give up the fourth dimension, essential to the preparing of the effect “geometry in nothing”.

Except that maintaining each one of these four parallel universes has two space dimensions and time in common with each of the three others. The dimension which it does not have equips it.

Common two-dimensional spaces thus undergo at the same time universal and “extra

constraints universal”. The height for example, belongs at the same time to our universe and two other universes. The same applies to the width or the depth. What results in the distortions 2D of the weak interaction and electromagnetism: we will see that a little further.

These four universes 3D are thus overlapping one in another, they are not really parallel. Each one of them shares the same quadridimentionnelle geometry partially as the others. They are rather the four corners of same “a hyperunivers” 4D ratatiné. A great interdependence thus links four great geometrical divisions of space 4D ratatiné.

> Failing to emerge in our space, the hyperdimension permanently rocks, on all the scales, for all the reference frames, in height, width, or in-depth. What causes geometrical distortions, from which result electromagnetism, as well as the interactions weak and strong. As for the gravitation, it requires only our three traditional dimensions.

In our space usual 3D, space is subdivided in spaces 1D and 2D directed in all the directions. These discontinuities are based on the great scales in a blur which gives the traditional height/width/depth. Not sufficiently fuzzy however to hide the ceaseless transformations of the hyperdimension.

The FOUR INTERACTIONS page 2

GRAVITATION AND MASS

Return

In the four-dimensional space “outside ratatiné” in a point “in” nothing, only of the structures of space bonds cash to more three space dimensions can extend. Result from this restriction the nuclear gravitation, magnetism and the two interactions.

“A new idea of quantum gravitation, appeared these six last years, is the theory of the loops: Abhay Ashtekar and its colleagues of the university of Syracuse found a rewriting of the equations of the general relativity which brings closer these equations the equations of the quantum electrodynamics. This rewriting enables them to treat the gravitation like a quantum phenomenon of mechanics, without encountering the mathematical problems which blocked other attempts. According to this theory, space is not any more one continuous entity, but a kind of dimension of meshs, made up of tiny and tangled up loops.”
(*For Science* number 198 of April 1994)

They are here the closed “space loops” of the theory of the cords: they make it possible to find the gravitation, such as relativity describes it.

The mass, it is energy at rest

At the very low temperature of a superconductive medium (little agitated), the photon acquires a mass and its range passes from infinite to finished. This example is generalizable with all the massive particles. The relative particles constitutive of the waves have a more or less fast movement. The slower the movement of a wave is, the more it behaves like an obstacle for the surrounding movement. The mass of vagueness increases.

Let us imagine in a pleasant way a space loop decided like a she-ass with moving very little, to which its neighbor tries to yield or take points: the unfortunate neighbor has the impression that it attacks relative particles which weigh tons. In the absolute the space loops exchange movement between them permanently. This movement produces very diversified interferences and the slowest zones are tendentially most massive.

Mass, energy, inertia and gravitation

A body has a all the more large mass as the movement of its constitutive relative particles is close to zero point per moment. And reciprocally, a body has a all the more large energy as the movement of its relative particles is close to a point per moment. What nature gains in mass, it loses it moving and reciprocally.

On the other hand, the relative particles of a body which accelerates tend in a number growing towards the limit of a point per moment: the inertia of the body increases in proportion. When an object is twice more massive than another, the gravitation which is exerted on him is twice larger. But as the inertia which is opposed to its acceleration is it also twice larger, the two objects in free fall in the vacuum fall at the same speed. In other words, the gravitation is proportional to inertia - or more exactly, the gravitation and inertia have equivalent effects.

Gravitation? Geometry!

Extremely dense soup constitutive of stars called “to neutrons” restricts the freedom of movement of all that compresses there. The deceleration of its relative particles “leads” its

exchanges of points, of space, as well inside star, as with its external environment. Then the mass with the cubic centimeter is considerable there, about a billion tons for a gulp. The less the relative particles have space to be driven, the less they are driven and the more they constitute massive structures.

The more one body has a great density in relative particles, plus its space bonds are short, and more its exchanges of space with its external environment are unbalanced. The more it can receive points and the less it can give some. This local defect of space is geometrically equivalent to a nonEuclidean concentration (riemannienne) of curve, which more or less draws towards it the geodetic local ones. In the extreme case of the black holes, the curve is so intense that it traps even the light. The gravitation is a geometrical effect of the mass.

This concentration of curve has great consequences on a bond made up of some points: it acts on high percentages length of the bond. While it comparatively has tiny consequences on a bond made up of a great number of points: some points of less are far from absorbing it. With constant masses, the intensity of the gravitation increases thus with the reduction in the scale considered. The 1/d2 there F finds = GMm/d2, without taking account of the relativistic corrections, which here do not change anything with the principle. The particles are however so light objects which they exert between them, individually, of the negligible gravitational effects.

The greatest variations, expressed as a percentage the length of the space bonds, occur on smallest scales, equal or immediately above than two points. Great gravitational heterogeneities vary very quickly, in great proportions. They create a kind of chaotic foam of the space time, in which the geodetic ones are particularly sinuous, fluctuating.

Summary

The more of the short space bonds densifient a volume in relative particles, the more the movements inside this volume restrict their sphere of activity. The more the body can absorb points and the less it can give some, which brings closer him the geodetic neighbouring ones. The surrounding bodies undergo a curve of their trajectory towards the body inversely proportional to the square of the distance which separates them from the body: the gravitation attracts them.

The gravitation involves a relative deceleration of the clocks

When the relative particles constitutive of a body have an average quantity of movement

lower than that of the local environment of the body, they constitute “clocks” whose average rate/rhythm of the beat is lower than local average time. When the mass of a body increases, time lengthens compared to that of an external reference frame.

Inertia produces the same effect. If we could observe since a reference frame not accelerated a rocket to approach the speed of the light, we would gradually see it “solidifying” in time, since all its evolutions would tend “to be blocked” at the speed indépassable of a point per moment. Its displacement would consume moreover an energy which would tend towards the infinite one, since its inertia would also tend it towards the infinite one. This is why the massive bodies cannot reach the speed of the light. On the other hand the photon, the “grain of luminous energy”, has a null mass - its time is him also null, it saw a kind of eternal present.

A correlation thus links mass, inertia and time. What involves an astonishing consequence. In the nonEuclidean geometry of the space time (curved by a mass), the shortest way between two points is not the cord, but the arc. The trajectories are space curve, but also in time: they follow the longest way and slowest. What forms a relativistic expression of the principle of less action. In fact more the space time minimizes its geometry, that the system which minimizes its action.

Equivalence masses - energy (of E/c2 to m)

Let us imagine that the universe is made up only of one gas of relative particles (E/c2) that nothing retains. They more or less move all at speeds of a point per moment. The general temperature is considerable. Thus energy in the universe is also, but nothing weighs quite heavy. However the movements of the space bonds are not identical everywhere. Sets of relative particles yield length, which more or less condenses them in certain spaces. Their internal momentum, their temperature, their energy decrease. What makes them oppose a beginning of resistance to the surrounding storms, a beginning of mass. These condensed sets gain in cohesion, they agrégent particles with their incipient structures. They become thus increasingly massive. In this process energy is not lost, it is transformed into mass Mr. Énergie and mass is indeed equivalent.

The “mass defect” is an illustration of equivalence masses - energy.

An atomic nucleus has a mass lower than that of the sum of its components, considered separately. The difference is found in the form of the binding energy necessary to the cohesion of the core. This transformation is negligible, but an enormous number of atoms exist.

- Nuclear fission releases part of this binding energy.
- While fusion transforms part of the mass into binding energy. It gives overall assets lower than that of the components of origin, plus a broad surplus of energy. Thus the mass of the Sun forces the fusion of the hydrogen atoms in helium atoms. A deficit of mass follows, about four million tons at each second. From where an energy production which, inter alia effects, makes us bronze.

Gravitational waves

When two stars constituting a binary system turn around their common center of gravity, their gravitational waves spread out little by little the energy of their local movement in cosmos. These stars lose thus of their kinetic energy and they end up plunging one towards the other, which causes large sparks.

Although envisaged by the general relativity as of the shivers of “mollusc” (the word is of Einstein) spatiotemporel, the gravitational waves were however not detected yet directly. There are some in theory of all kinds and all the sizes. They permanently cross the universal hank of space bonds and relative particles.

Imaginary representation gravitational waves
(Illustration: DCU)

But, like effects of the gravitation in our universe, they deform only the 3D height/width/depth. Seen since our ordinary space, they appear excessively weak. In the same way, the imaginary inhabitants of a space corrugated 2D plunged in our space 3D would not see “outside”. Their glances and their measurements would follow the sinuosities of their space 2D and they would be believed in a space “flat”, Euclidean, deprived of undulations. If they measured the sum of the angles of a triangle, they would use rules as curved as would be to it their space - but which would appear right to them - and they would find 180°, in accordance with the Euclidean geometry. We are in the same dimensional situation, but in 3D. On the other hand, observed since a space in 3D hyperdimensionnelle, “our” gravitational waves space distortions much more easily detectable produce logically.

THE FOUR INTERACTIONS page 3

THE WEAK INTERACTION

Return

In the four-dimensional space “outside shrivelled” in a point “in” nothing, only of the structures of space bonds cash to more three space dimensions can extend. Result from this restriction the nuclear gravitation, magnetism and the two interactions.

“Something unknown is doing we don' t know what.”
(Comment of Sir Arthur Eddington concerning the principle of uncertainty)

Three spaces give three bosons

The bosons are particles which transmit an interaction. They can be charged, as gluons them of the strong interaction, in this case they interact between them. Or not charged, like the photons of the electromagnetic interaction, in this case they do not interact between them. This concept of boson will be clarified in a forthcoming section.

There is weak interaction when there is space 3D comprising of the hyperdimension. An important characteristic: the existence of a geometrical incompatibility with our space 3D not comprising a hyperdimension. Three spaces in 2D “authorized” are thus projected in our 3D dimensional:

- height + depth + hidden hyperdimension

- height + width + hidden hyperdimension
- depth + width + hidden hyperdimension

By “hidden hyperdimension” let us understand permanent swings of the hyperdimension in our space 3D, in height, width, or in-depth.

Ceaseless transformations of the hyperdimensionnelle geometry 3D on the smallest scales create space decompositions, distortions, whose waves of relative particles constitute the W+ bosons, W and Z0 weak charge carriers. These three particles thus seem to us objects 2D comprising only two authorized dimensions, linking our usual space with spaces 3D comprising of the hyperdimension. They are presented at us under angles such as we do not see their hyperdimension.

On the small scales, space “juggles” thus permanently with dimensions. What causes geometrical compositions and decompositions. Two cases of figure occur then:

- Or a fluctuating space “foam” traps W+, W and Z0: these three particles have a mass, a short range and a very short lifespan, about 10-25 S.

- Or this “foam” is not sufficient to retain the particles, which are then without mass, of infinite range and which can live indefinitely. They cross all kinds of spaces 2D: spaces 2D do not differentiate them. I named the photon.

A “broken” symmetry unifies the interactions thus weak and electromagnetic, it gives the “électrofaible” interaction. If the boson of Higgs exists, it is undoubtedly in these trimmings, but I really do not see where. Perhaps it in addition to W+, W and Z0 is created when it has enough fluctuations, of energy, due to the space transformations into authorized space. In this case it concentrates part of foam, which releases W+, W and Z0 and transforms them into photons. If one day it is detected, one will know some about it and it search for metaphysics explanations will be easier.

Doublets

> How the 3D hyperdimensionnelle project does an object in our 3D dimensional, while passing by the 2D authorized? Which are the physical effects of these projections?

When a hyperdimensionnel object in 3D in the dimensional absolute, but for us in 2D, presents one of its faces to us, we cannot observe it in a hyperdimension which is prohibited to us. But we can nevertheless see it from every angle in our dimensional

space. Its hyperdimensionnelle component can be indeed turned over in our space, so that the hyperobjet 3D is presented at us jointly under two complementary angles 2D: an angle corresponding to authorized dimensions, plus another angle, corresponding to prohibited, but transformed dimension. The hyperobjet 3D then shows us jointly his “visible” face (authorized) and its “hidden” face (transformed), more or less disjoined.

And indeed, the particles often appear to us in the shape of doublets. The most known doublet is the proton and the neutron, which are two states different from the same nucleon. But there are also the quarks U and D, C and S, T and B. To the electronic neutrino the electron corresponds, to the muon neutrino corresponds the muon, with the tau neutrino the tau. A doublet, they is the two faces 2D of the same hyperdimensionnelle particle 3D.

Violations of symmetry

Let us imagine that a right hypermain is projected in 2D authorized in our space. We see on the one hand a right hand 2D which hides its prohibited angle and on the other hand the prohibited angle turned over in 2D authorized. The hypermain is duplicated thus in 2D authorized in our space 3D, where see we it “from every angle”. In this precise case, only exist two (hyper) right hands in 2D authorized. Symmetry in a mirror (by inversion of the three space co-ordinates), which is called the parity, in this case is violated, since it gives only one left hypermain - a phenomenon which here does not exist. Such a violation of the parity is one of the characteristics of the weak interaction.

Any movement takes place compared to something, compared to a reference frame. A hyperparticule 3D considered in the direction of its trajectory can turn very well on itself in a direction in its hyperspace 3D, and the other direction in another environment, compared to other reference frames, in our space for example.

We however saw in the Points page and moments that a basic rotation exists. The creation of a point moreover at every moment moreover tendentially shifts the position of any “motionless” object compared to the continuation of points in a direction which goes from the most recent points towards the oldest points. The hyperobjets which are projected in our space “thus prefer” tendentially to turn in this direction. In compensation, the corresponding particles of antimatter turn symmetrically in the contrary direction.

Such a preferential rotation violates the parity. It corresponds typically to the quantified intrinsic rotation (with the spin) of the neutrinos, which turns only on the left. The neutrinos

with right helicity do not exist. There is a phenomenon whose symmetrical one in a mirror does not exist in nature. These particles are sensitive only to the weak interaction, fautrice of the radioactivity beta which emits some. An atomic nucleus disintegrates spontaneously in an electron and a antineutrino, or in a positron and a neutrino.

The weak interaction violates at the same time the load. The neutrino, whose helicity is always left, does not have an antiparticle whose helicity would turn it also left. And reciprocally, to the antineutrino, whose helicity is always right, does not correspond a right neutrino. The weak interaction thus partly breaks symmetry between the matter and the antimatter.

Knowing that total symmetry charges, parity, time (transformation CPT) are always respected, if the parity and the load are not symmetrical, it is that in compensation symmetry by temporal inversion (a film passed to back) is not it either. And indeed, a point moreover at every moment moreover, that do not make a symmetrical past and a future. Fortunately besides, because if not, I wonder well how the causes could always precede the effects.

Transformations of particles and disintegrations

When a hyperobjet 3D is turned over in its space hyperdimensionnel, projection 2D of this reversal gives the impression that the two complementary faces 2D transform one into the other. It is a little like a cauliflower located between two mirrors, in which it is reflected. That the two mirrors operate a half-revolution around cabbage and it seems us that they change one into the other. (Metaphysics is not any more what it was.) the particles which reflect in our space same a hyperparticule change thus more easily between them only with the other particles. For example, the neutral kaon and the neutral antikaon are unstable particles which have time to change one into the other, to oscillate, before disintegrating. As for the solar neutrinos, a part of them seems to change into neutrinos of another species before reaching the Earth.

One of the effects of this transformation of the particles the ones into the others is to disaggregate a certain number of structures and to form news of them. The weak interaction results thus in disintegration of the leptons and the heaviest quarks into lighter (the electron in electronic neutrino, the quark U in quark D for example), by the disintegration of the free neutron in a proton, an electron and a antineutrino (and conversely, proton in a neutron), by that of a pawn in a muon or by that of a muon in an electron. (The emission of a neutrino accompanies these disintegrations). When the weak interaction changes the “savour” of the one of the quarks constitutive of a proton, that can all give, except a proton: the proton disintegrates, it is transformed into another thing.

THE FOUR INTERACTIONS page 4

THE ELECTROMAGNETIC INTERACTION

Return

In the four-dimensional space “outside ratatiné” in a point “in” nothing, only of the structures of space bonds cash to more three space dimensions can extend. Result from this restriction the nuclear gravitation, magnetism and the two interactions.

“To make metaphysics, there is no doubt, it is necessary to like that.”
(Pastiche of a sentence of Richard Feynman, whose original is quoted by Heinz Pagels in the *quantum universe,* InterÉditions, 1985)

Spaces 2D fractals

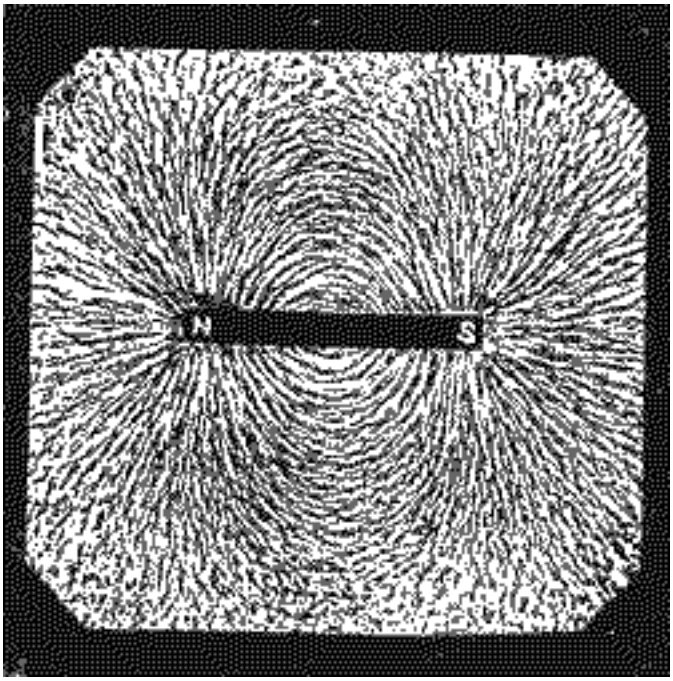
The weak interaction occurs only on microscopic scales. But the crossings authorized between the 3D hyperdimensionnelles and the 3D dimensional create also a whole of at the same time microscopic and macroscopic phenomena: electromagnetism.

The more or less laminated spaces 2D, more or less superimposed in “onion skins” intersect more or less on all the scales. These spaces 2D can then be linked so that they occupy of spaces 3D. They thus form pseudo-spaces 3D comparable with ours. They are in fact spaces 2D fractals, which can cumulate locally and pass by a great number of surfaces of our space 3D, but which does not have “internal” volume. The tension fields and the faces of waves of the electromagnetic field are found there.

These microscopic crossings of spaces 2D explain the quantification of the magnetic

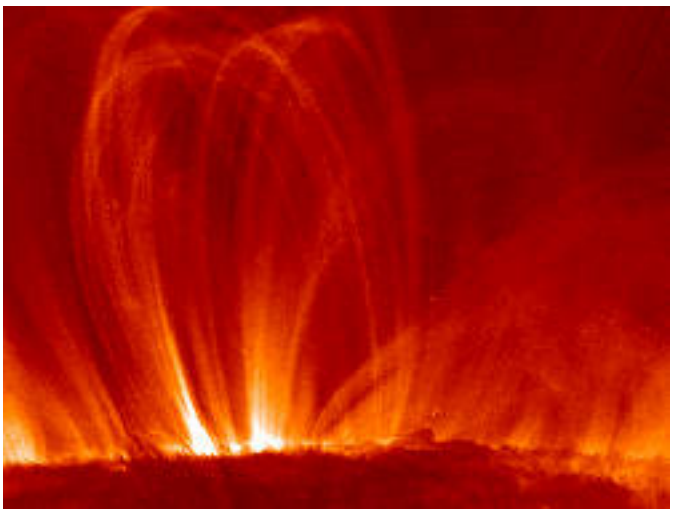
moment of particles which are located at kinds of space “crossroads”.

These distortions 2D plunged in our space 3D constitute the electromagnetic interaction.



Magnetic figures
(Scientific American No 324 of March 18, 1882)
(Reproduction: Project Gutenberg)

For example the energy of the solar protuberances comes from longitudinal electromagnetic waves in the form of loops, which are not spread out in our space 3D, as sound waves would do it. Intrinsic geometrical constraints channel a hot plasma, a mixture of neutral particles, ions positive and electrons.



Solar protuberances, on August 9, 1999
(Photograph: NASA Transition Area And Coronal To explore)

By their often draped aspect, the polar lights constitute also interesting examples of the

aspect 2D of the electromagnetic phenomena. They are interactions between the wind of solar particles and the terrestrial magnetic field, which produce excitations and ionizations of atoms.

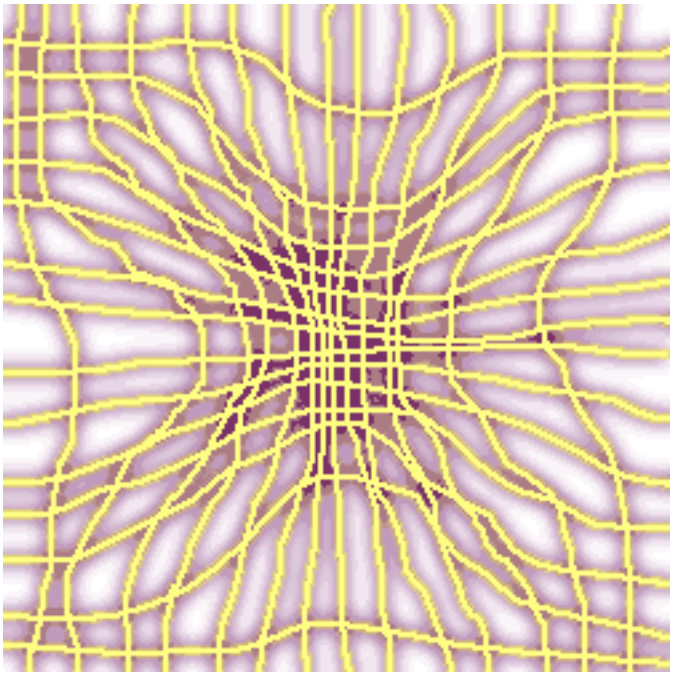
Space anisotropies and photons

Our space thus locally appears more or less dilated or contracted in 2D, according to the electromagnetism which crosses it. A space dilation forms a repulsion and a space contraction forms an attraction. When there is interaction, there is transformation of the local geometry.

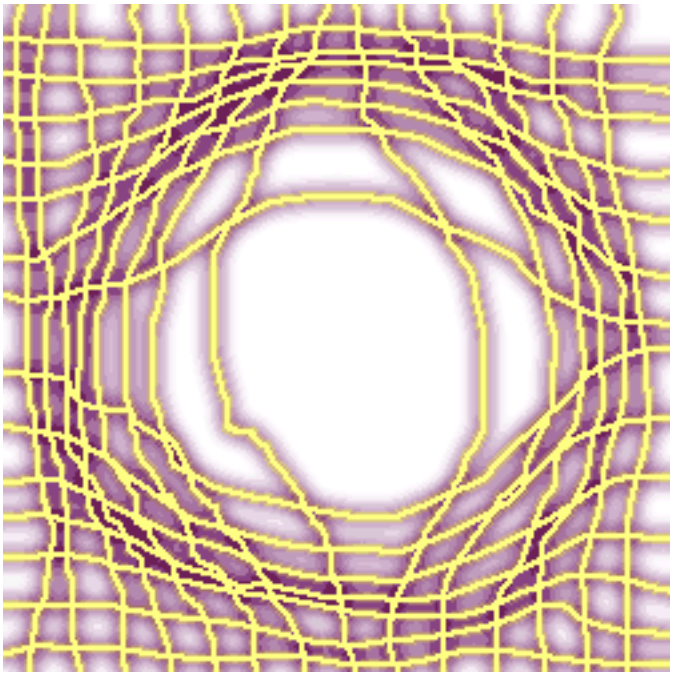
These local space anisotropies interfere more or less between them. It results from it from alternations 2D of tightened and drawn aside zones. The trajectories become deformed in sinusoids more or less regular, more or less full and intense, characteristic of the undulatory properties of the light.

The photons are the particles vectors of the electromagnetic interaction. They are vague 2D, momentary deformations, which follow the geodetic ones of the spaces 2D intersected in multiple directions. The light is thus naturally polarized in multiple directions.

Attraction and repulsion



Principle of a gravitational zone
(a gravitational pole)

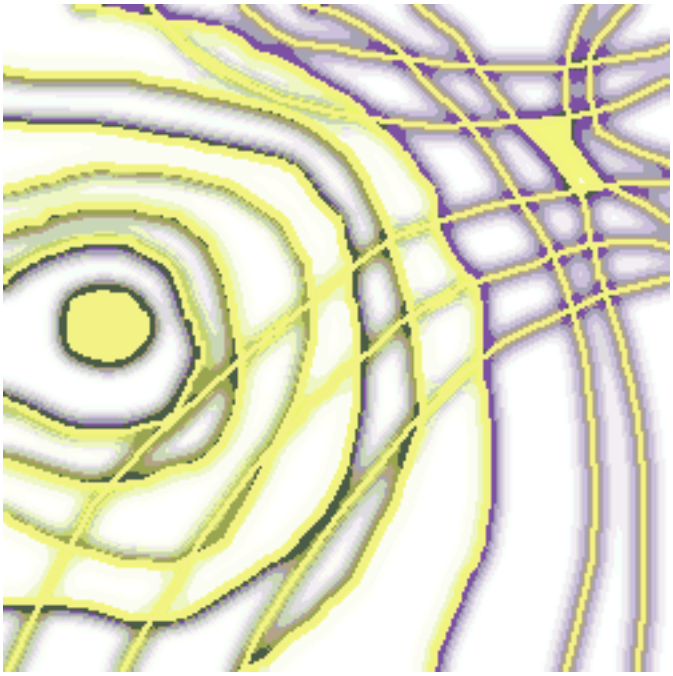


Principle of a repulsive zone
(a repulsive pole)

(Illustrations: DCU)

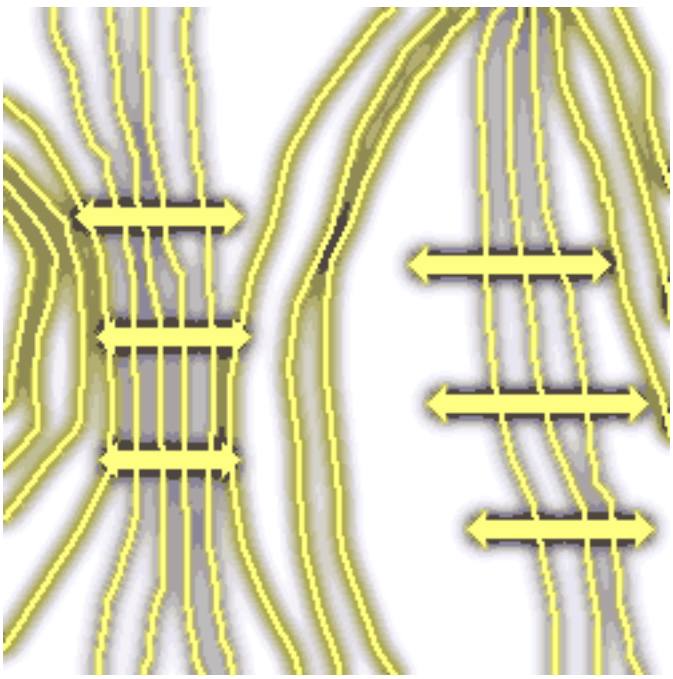
“In” space 2D of electromagnetism, the particles follow more or less curved trajectories, which result partly from their movements in the 3D hyperdimensionnelle. Their geodetic, their current or potential trajectories, follows the shortest way of a point to another of their curved space. They thus constitute an irregular “grid”, locally more or less tight. When a grid tightens some share, it “draws” on the geodetic surrounding ones and it constitutes “attractile”. It locally deviates the trajectories of the particles, which are some deflected. Contrary, when a grid is stretched, it “pushes back” the trajectories locally, which involves still deflections there and it constitutes a “repulsion”. When the trajectories inflect, an electromagnetic field attracts or pushes back the photons.

The movement of the particles of the electromagnetic 2D results thus from a chaotic tangle of zones more or less tightened or stretched, of which the effects are opposed or are reinforced more or less. This microscopic chaos is more or less heterogeneous. There are thus macroscopic zones which rather tend to attract the photons of space local intersected 2D, as there exists about it the different one which rather tends to push back the photons.



Principle of electromagnetic attraction
(Illustration: DCU)

More two zones of contrary signs (a gravitational zone and a repulsive zone) of deflection of the trajectories of the photons approach one the other, more the remaining intermediate zone which separates them has a strong curve. Thus more freedom of movement in this intermediate zone is restricted, is limited to a narrow space (here on the left part of the image above). The more two zones of contrary signs approach one the other and the more they tend “to be retained captive”. More they “capture” the trajectories and the particles which pass by them.



Principle of the electromagnetic repulsion
(Illustration: DCU)

When two gravitational zones or two repulsive zones (of strong curve) are locally in presence, they balance mutually more or less. They cause together on the trajectories which pass between them of the deformations which are compensated more or less. These intermediate trajectories balances some, relatively not very disturbed, push back the zones of strong deflection. More two of the same zones signs (two gravitational or repulsive zones, of strong curve) approach one the other, more the intermediate zone of balance (of low curve, crossed by arrows in the image above) is reinforced, it thus tends to maintain isolated these two of the same zones signs.

As each one knows it indeed, the electromagnetic poles of contrary signs attract each other and the of the same poles sign are pushed back.

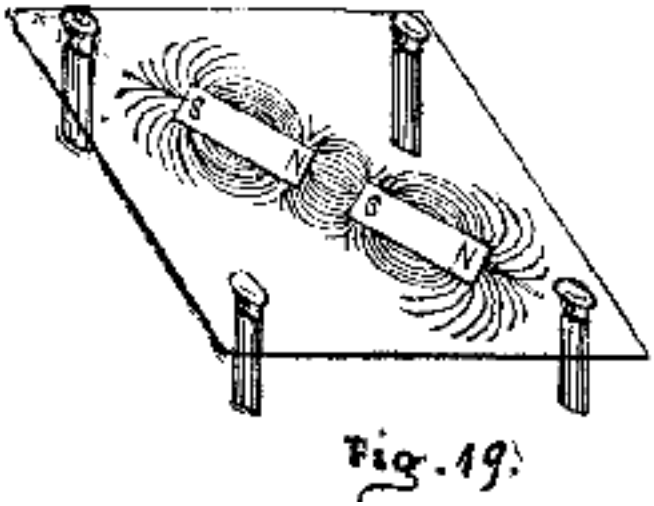


Fig. 19.

The poles of contrary signs attract each other

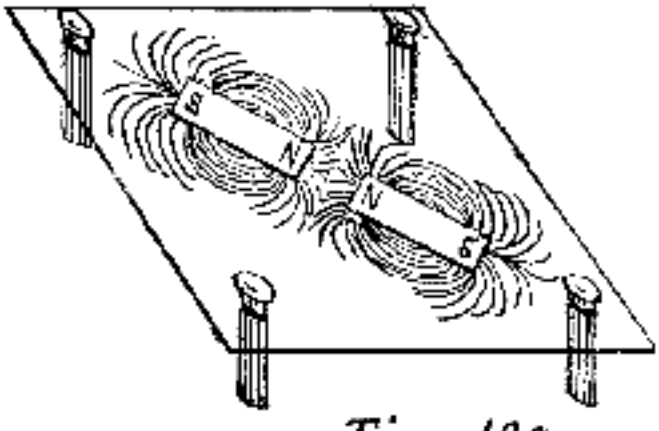


Fig. 19a.

The of the same poles sign are pushed back
(Scientific American No 643 of April 28, 1888)

(Reproductions: Project Gutenberg)

According to the law of Coulomb, two specific electric charges exert one on the other

a force proportional to their product, gravitational if the loads are contrary signs, repulsive if they are of the same sign, and inversely proportional to the square of the distance which separates them.

In addition, when a magnet in two is divided, the two poles are reconstituted: impossible to create two monopôles. And due, the zones 2D undergo interactions with the remainder of the universe, they become deformed more or less permanently. Their geodetic is always more or less curved, of the zones 2D contract or dilate always more than others. Even if we could “isolate” a monopôle, with geodetic the perfectly regular ones, it would not last a long time. Very quickly its nonlocal interactions would deform it. Would be recreated then a traditional electromagnetism.

A magnetic field is a zone of intersected distortions 2D, plunged in our space 3D.

The particles sensitive to magnetism have geometries which make more or less gravitational or repulsive microscopic poles of them. They transmit movement, signals, by exchanging between them “virtual photons”, fugacious carriers of energy, which follow the geodetic ones created by the intersected distortions 2D.

Ferromagnetism

> Why a magnetic field can be also strong in iron, cobalt, nickel or certain alloys, but not in other metals? It is for example impossible to attract an aluminium foil with a magnet. However magnetism should appear in an equivalent way in all metals. The electrons and the photons indeed have the same properties in any metal.

Spaces 2D of magnetism can be curved locally so that they occupy of spaces 3D. They constitute pseudo-spaces 3D thus. The unfoldings of their geodetic are superimposed then so that they constitute more or less regular “reasons” fractals. If this regularity is sufficient, then the interferences and the interferences of interferences extend until the great scales: *the ferromagnetism* follows, that of iron for example. If this regularity is insufficient, it is scrambled more or less on the great scales: *paramagnetism* follows, that of copper for example.

Moreover, the magnetization of an iron bar increases more quickly than its demagnetization. A residual magnetization remains even when the initial magnetic field is

not exerted any more. This phenomenon of hysteresis is explained like previously. The magnetic field plunges the iron bar in a space to geodetic more or less ordered. This space prints with the atoms and the ions constitutive of the metal of the common orientations on great scales. These orientations remain more or less in the absence of contrary fields, which creates a kind of memory of the passage of the magnetic field.

Beyond the temperature of Curie however, the thermal agitation of the molecules scrambles the more or less great creative regularity fractale of macroscopic magnetism and on the great scales any magnetization falls to zero or almost.

Two points of view

The same electron induces a magnetic field for a reference frame *moving* compared to him, but in same time, it does not induce any for another reference frame, *motionless* compared to him. These two reference frames “see” each one indeed two formlessnesses different (two of the 2# - 1 unfoldings) from the same reality. (In the absolute they “see” the same reality under different angles.) To each one of these formlessnesses a space particular 2D corresponds. What creates vague 2D particular for the reference frame moving and of vague the 2D particular for the relatively motionless reference frame. There is thus superposition of induction 2D and not-induction 2D. Depending on its state, it is the reference frame which selects such or such point of view, such or such formlessness.

In an album of comic strips reporting the adventures of Iznogoud, if my memory is good, of the characters cross a street. Then one of them estimates that he is a a little magician on the edges: the pavement from where they come became that of opposite. On each side of the street, the pavement is jointly “that where the passers by are” and “that of opposite”. All depends on the point of view. Same logic is found in electromagnetism. Each electron creates and jointly does not create a magnetic field: all depends on the point of view.

THE FOUR INTERACTIONS page 5

THE STRONG INTERACTION

Return

In the four-dimensional space “outside ratatiné” in a point “in” nothing, only of the structures of space bonds cash to more three space dimensions can extend. Result from this restriction the nuclear gravitation, magnetism and the two interactions.

“All that is not prohibited is obligatory.”
(Murray Gell-Mann, after George Duhamel)

Two-dimensional spaces

They are (42 - 4)/2, that is to say six two-dimensional spaces:

- height/width
- height/depth
- width/depth
- hyperdimension/height
- hyperdimension/width
- hyperdimension/depth

Three two-dimensional spaces not comprising a hyperdimension constitute subsets of the gravitation: let us put to them side here.

As for three two-dimensional spaces comprising of the hyperdimension, our space dimensional 3D “sees them” like unidimensional space distortions. Or more exactly, like

three dimensional spaces, to which three transformed projections of three spaces hyperdimensionnels are added. What with final, from our point of view, gives six sources (plain) dimensional of movement, therefore six quarks (U and D, C and S, T and b).

Quarks

Either a quark combines with a antiquark to constitute an unstable meson, or three quarks are assembled to form heavier particles, such as the protons, the neutrons or the hyperons - or four quarks or more form other subatomic particles, if they exist. Predicted by the Russian theorist Dmitri Diakonov and his colleagues in 1997, the pentaquark, particle with five quarks, remains imperceptible: certain experiments detect it, others not. The antiquarks constitute also particles of antimatter.

The quarks are very strongly dependent between them, they “are confined in the high-energy particles”, in particles sensitive to the strong interaction. The action of this containment increases with the distance. It was thus never possible to insulate a quark. Energy necessary to the extraction of a quark to its containment is indeed such as it is transformed at once into at least a new (anti) quark. The “extracted” quark does not make whereas to change high-energy particle.

In our three-dimensional space height/width/length, there is indeed transformation of spaces hyperdimensionnels 2D into unidimensional spaces 1D. Each one of these unidimensional spaces, with the more or less fluctuating length, makes up of only one space bond, or a unidimensional succession of space bonds. All the times that two quarks, dependent between them by a unidimensional space, move away one from the other, it is at least a space bond which lengthens, it is not a wave of relative particles which moves into 2 or 3D. However the movement of each space bond is very strongly constrained, since it depends jointly on 2# - 1 different environments. The more two quarks move away one from the other, the more their movement meets resistance, which explains their containment. Be explained also the fact that the tension fields are exerted in a unidimensional way of a quark with another, without extending around the particles, as it is the case with the interactions weak, electromagnetic or gravitational.

The positive protons all of the same atomic nucleus thus overcome their electrostatic repulsion by the containment of the quarks constitutive of the core. Trapped by the unidimensional limitations of the movement of their constitutive relative particles, they remain more or less stable in a kind of “sea” of space bonds. They undergo the strong interaction thus, commune with all the high-energy particles.

In the same way, let us gluons them, vectors of the strong interaction, should have an infinite range a priori, like that of the photons, since they have a null mass. But their

unidimensionnality restricts their range on scales about the size of the atomic nucleus.

These space constraints are much stronger on subatomic scales than above. The more the scale increases indeed, and the more of the space bonds in great number carry the movement, which multiplies the ways of replacement that the propagation can borrow.

Loads of color and anti-color

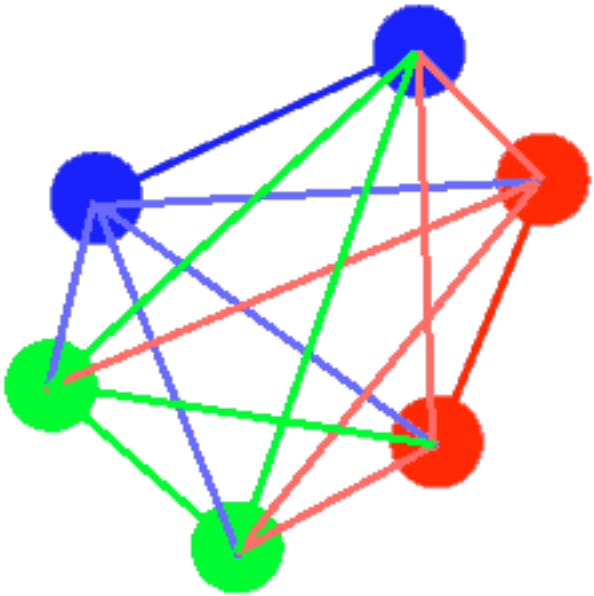
- height + hidden hyperdimension
- width + hidden hyperdimension
- depth + hidden hyperdimension

There by “hidden hyperdimension” let us understand still permanent swings of the hyperdimension in our space 3D, in height, width, or in-depth.

These three spaces (hyper) dimensional of the quarks correspond to the three loads of “color” (red, green and blue) basic of chromodynamic quantum. These abstract “colors” characterize the sensitivity of the quarks to the strong interaction.

In fact the things are a little bit more complicated, because exist also loads of anti-color. Let us say arbitrarily that there is color when a dimension is considered in the direction last - future in the order of creation of the points, and anti-color when it is considered in the direction future - passed. (Respectively, of the oldest end of a space loop towards most recent, and of most recent towards oldest.) We could also admit the reverse, which would not change anything on the bottom.

When the quarks link their three unidimensional spaces authorized in our 3D dimensional, they constitute subatomic particles “white” rather stable, since made of height/width/depth. In this case indeed, their respective distortions space find compensations geometrical in their immediate environment, which stabilizes overall the chaos of their movements.



Notation symbolic of a “white” high-energy particle composed of three “coloured” quarks.

This space 3D counts less green bonds than of blue bonds and less blue bonds than of red bonds: it is geometrically “irregular”, i.e. curve, riemannien. From its space distortions result part of its characteristics; they can be very diverse: for example of great differences in masses exist between the quarks of various species.
(Illustration: DCU)

But dimensions are interchangeable. For example, a vertically held pencil is higher than broad, then after a quarter of turn on a side, it is broader than high. The same applies to quarks and of their geometry, which change easily.

In this moving geometry, the of the same quarks color are pushed back and those of different colors attract each other:

- (Hyper) spaces of the same dimension (of the same color) tend to constitute the segments of single unidimensional spaces. Small lengths are transformed then into larger. What results in a repulsion.

- (Hyper) spaces of size (of colors) different tend to constitute prohibited spaces 4D. They break up more or less permanently. Big lengths are transformed then into smaller. What results in an attraction.

A color returns to a color considered in the direction last - future, in the order of creation of the points, we have says. However the negative echoes which return towards the space bonds of color go from the horizon towards the bond, they are equivalent to color which goes up the course of time. Passed and future are reversed - partly only, because always

creates for itself a point moreover at every moment moreover. Thus let us consider that to each color like negative energy the equivalent of a anti-color returns. Color and anti-color interfere between them, they also tend they to constitute prohibited spaces 4D. Their spaces break up more or less, the big lengths are transformed into smaller. What results by an attraction and the creation of mesons. The addition of a color and a anti-color gives the white color in addition.

The particles sensitive to the color interact between them while exchanging gluons, which are themselves in charge of the colors that they carry. What distinguishes them from the photons, which them carry the electromagnetic loads without being themselves charged. The particles sensitive to the color are indeed space (unidimensional). Whereas the particles sensitive to electromagnetism are not themselves space, it do nothing but undergo the distortions of geodetic, from where them neutrality.

Follow of the phenomena “of écrantage”. Each particle of a color is surrounded by a cloud of virtual particles of contrary color. As this cloud is charged, more one considers large scales around the particle, more the load is important. The more two quarks of different colors move away one from the other and the stronger the load which connects them is…. On the smallest scales, the quarks behave rather like free particles, this is why it is a question of “asymptotic freedom here”. Electrodynamics described it also such a phenomenon of écrantage, but reversed. The photons are not charged and the action of electromagnetism decreases with the distance.

Moreover, “the interchangeability” of dimensions also more or less makes the quarks them “interchangeable”. Each quark is not “pure”, it is an oscillating “mixture”, which supports more or less such or such species. The angles of Cabibbo describe these mixtures. They evoke the sectors of “a Camembert cheese” chart: the same quark comprises such or such percentage of two varieties of quarks.

Loads of savour

The quarks are also characterized by their sensitivity to the weak interaction, which makes them change species. To six loads of “savour” (U and D, C and S, T and b) correspond six species of quarks. For example, during a beta decay, a quark U changes into quark D.

The weak interaction distinguishes the quarks belonging to spaces 3D comprising from the hyperdimension and those not belonging to it. There thus exists from its “point of view” two spaces height/width/depth - is six loads of savour. Follow of the transformations of geometries, which correspond to changes of species. Also follow of disintegrations, because among these transformations, there is hyperdimension. I.e. prohibited spaces which rock towards geometries authorized before to have even been able to be created.

Savour brings to the high-energy particles all their basic properties - excluded loads of color - in particular their electromagnetic loads.

Fractional electromagnetic loads

Two-dimensional objects comprising of the hyperdimension, the quarks are shown with us in the shape of unidimensional objects. They occupy only one third of our three-dimensional space. This distribution confers fractional electromagnetic loads to them, i.e. multiple from + 1/3 or of - 1/3.

However, the geometry of electromagnetism is two-dimensional. From its “point of view” the load of the quarks is a multiple from + 1/2 or of - 1/2. “The electromagnetic universe” and ours “thus do not see” not the same thing, they are very different one from the other, although the same physical laws govern them. There is perhaps there a physical effect still to discover.

The repulsion hard core

The more the scale decreases and the more the space bonds not comprising that two constitutive points accumulate. Such bonds can vary only in two ways: to disappear or lengthen. Thus more the scale decreases and more the variations of the bonds take place only in one direction: lengthening - thus the repulsion. The repulsion (or potential is found there) hard core. Exist thus a saturation of the connections between the nucleons, which increases as decreases the distance.

~~~~~~~~~~~~~~~

Summary of the four fundamental interactions

Gravitation:

height + width + depth
~~~~~~~~~~~~~~~

The weak interaction:

height + depth + hidden hyperdimension
or
height + width + hidden hyperdimension
or
depth + width + hidden hyperdimension

The electromagnetic interaction:

height + depth + hidden hyperdimension
and
height + width + hidden hyperdimension
and
depth + width + hidden hyperdimension

The strong interaction:

height + hidden hyperdimension
and/or
width + hidden hyperdimension
and/or
depth + hidden hyperdimension

~~~~~~~~~~~~~~~

It is undoubtedly not a chance if the intensity of the four interactions tends to be equalized in the vicinity of the scale of Planck: the smaller the scale is, the smaller the number of points in action is, and the more the differences between the geometries are reduced.

The complex movement of the space loops makes it possible the universe to use four existing space dimensions, without to be reduced to a universe ratatiné in a point.
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FERMIONS: no unfoldings
BOSONS: unfoldings
SPIN: unidimensional pseudo-rotation

Section 9

FERMIONS, BOSONS AND THE SPIN

Return

When space bonds do not duplicate the same space loop, the corresponding relative particles are distinct. They have, the ones compared to the others, an “individualistic” behavior.

On the other hand, when space bonds duplicate the same space loop, the corresponding relative particles are unfoldings from/to each other. They have, the ones compared to the others, a synchronous, “gregarious” behavior.

“The quantum theory upsets the design of the elementarity. The smallest component of reality is not a thing, it is a report/ratio, a relation, an interaction.”
(Jean-Pierre Stick, Gilles Cohen-Tannoudji, the *horizon of the particles,* Gallimard, 1989)

- **At least two pairs of relative particles from which the space loops are different constitute a whole of fermions.**

- **At least two pairs of relative particles whose respective space bonds duplicate the same space loop constitute a boson field.**

Fermions

They depend on different space loops, from which the respective characteristics differ at every moment, would be this only by the age of their constitutive points. The characteristics of the fermions differ in the same way.

They obey the principle of exclusion of Pauli, according to whom the same function of wave can characterize one system of particle (S) at the same time. So that two systems are in presence, it is necessary that there are two functions of waves, which are different by at least one their parameters. Two involved fermions cannot be completely identical, they can each one be only in one state different from that of the other.

The electrons, which are fermions, “pile up” around the core of the atoms on quickly saturated levels. This saturation pushes back the electrons of the close atoms. On the other hand atoms can divide common electrons and constitute molecules. A more or less stable balance, ordered, settles thus between repulsion and attraction, from which result the traditional states from the matter: solid, liquid or gas.

The whole of the fermions gathers six quarks and six leptons. The quarks are sensitive to the four nuclear interactions, but not the leptons, which them do not undergo the strong interaction.

Bosons

Relative particles whose bonds duplicate the same space loop, the bosons always appear and disappear in an even number. (What locally corresponds to the appearance or the disappearance of at least a space bond, in the absolute with the appearance or the disappearance of at least a space loop.) They typically have a

synchronous behavior “gregarious”. They more or less constitute fields of particles in the same state of movement, of energy. For example the photon is a boson and a great number of photons in the same state can constitute a laser beam.

The bosons are the mediating particles of the fundamental interactions. How for example an exchange of photons maintenance it the electrostatic cohesion of the atoms? How an exchange of maintenance gluons the chromodynamic cohesion of the nucleons? The “massive” synchronism, of which photons and gluons are carrying, has an extent. The least specific disturbance is transmitted to all the field. These particles can thus transmit and carry movement, energy, such or such space topology, between two distant particles.

Under certain particular conditions, “gregarious” properties of the matter constitute macroscopic phenomena. When atoms are sufficiently cooled, their thermal agitation becomes tiny, which in exchange increases the quantum fluctuations of their energy, because of their more precise localization. Each atom “jumps” then permanently of unfolding in local unfolding of its constitutive relative particles. There is “one” atom no more, but of the unfoldings of this atom, which “scintillate” in an indistinct way in the container. The involved atoms fluctuate and mix so that they cease being distinguishable from/to each other. They behave like a single entity, called “condensate of Bose-Einstein”. For example helium 4 at very low temperature constitutes a liquid deprived of viscosity, in which heat is homogenized instantaneously. As if the variation of only one particle were equivalent to that of all the particles. Certain local synchronisms, which result from the mutual prolongations of the space loops, become directly visible then.

When electrons, fermions whose individual spin is half entirety, are paired in pairs of Cooper, under the effect of a sufficiently large cold, they constitute sets with the whole spin (twice 1/2 gives an entirety), characteristic of bosons. These pairs thus have a boson behavior. Their condensation in a driver results in a null resistance, since they are duplicated “everywhere at the same time”. They can “transmit” a movement, a signal “instantaneously”. Supraconductivity follows. A current can turn indefinitely in loop, without loss, as a long time as the cold remains.

The spin

The “spin” is an intrinsic “rotation” of the particles, whose orientation and variations of the kinetic moment are discrete. It is thus different from traditional rotation, continues, for example that of a ball of billiards on itself. It is rather about a pseudo-rotation.

On a particle scale, space is indeed a mixture of 1D, 2D and 3D more heterogeneous than on our human scale. Microscopic spaces 1D and 2D, corresponding respectively to

spaces 2D and 3D hyperdimensionnels, constitute in our space 3D of the lines or the layers which intersect locally more or less. The particles are located thus at the center of an intersection of geometries. The possible angles of rotation of the particles undergo this intersection, which depends on the local geometry, i.e. nature of the particle considered. They can take only certain discrete values.

The spin basically characterizes the movement of a segment of the continuation of points, which “slips” and changes successively its constitutive points. If one imagines the continuation of points like a ring, then the segment turns along the ring, which is equivalent to a rotation of the ring compared to him. However, with each end of the segment, the remainder of the universe constitutes a relative particle. Remain universe and relative particle “is seen” successively under different angles. The remainder of the universe sees the particle turning on itself, while the particle sees the “vault of heaven” turning compared to it.

Even the unidimensional particles, without surface, can thus turn on themselves in the relative one. For example, regarded as specific, the electron has a spin.

To be found in its initial state, a fermion must turn twice on itself

Let us imagine a coin of currency located in a space 3D comprising of the hyperdimension. Imaginary inhabitants of this space can see very well the two faces of this coin while turning over it “normally” in their space. But us? This coin appears to us in 2D, completely punt. We cannot even seize it between two fingers to turn over it since it does not have any thickness strictly. So that it shows us his other face, we should circumvent it. Unless it is space itself which turns over it. It indeed follows all the curves of two dimensions which it in common has with our space. These “twisted” spaces 2D exist, they illustrate even the principle of minimum, since they have only one face and one side. They are those curved in form of ribbon of Möbius. A paper band bored once and whose one sticks the ends gives a concrete illustration of it:

A ribbon of Möbius
(Scan: DCU)

When it follows such a space, the part shows us a face, then the turn according to the other face, and so on. With each turn, we detect sometimes a face, sometimes the other face of same a hyperparticule. For example, we start by seeing an electron, then when it was turned over, we see a neutrino - if it is still turned over we see an electron again. The intrinsic identity of a hyperparticule does not have in this case, from our point of view, that statistics. The particle more or less probably has such or such identity. I.e. it presents more or less a long time such or such face, according to the fluctuations of its environment.

The fermions thus find their initial state only after one double turn. They offer an example of the ceaseless transformations of spaces, on microscopic scales. The 4D juggles permanently so that an astronomical quantity of movements remain with more in 3D.

The fermions have a whole half spin and the bosons a whole spin

“A turn” for a fermion, they is thus actually two turns. A fermion which turns one only time on itself made only half of the way. Its spin is thus half entirety, it is expressed in multiples of 1/2.

It goes from there differently from the bosons, which them do not exist separately. A boson field, it is the same boson duplicated locally, which is presented more or less under various angles. However a boson can as many permute once as necessary with one of its unfoldings, i.e. with itself. Its space constraints are tiny. It does not need to bore space to

be turned over since its neighbor (does itself of it) is already more or less turned over. Only one turn for a boson, it is thus a whole variation, which passes from one particle to the one of its unfoldings. The spin of bosons is a multiple entirety or no one.

Are the atoms fermions or bosons?

- An odd number N of fermions multiplied by 1/2 gives overall the spin half-entirety of a fermion. The atoms are thus fermions when they count an odd number of constitutive fermions.
- An even number of fermions multiplied by 1/2 gives overall the whole spin of a boson. The atoms are thus bosons when they count an even number of constitutive fermions.

For example, with two protons and a neutron, the core of the helium 3 atom is a fermion. While with two protons and two neutrons, the core of the helium 4 atom is a boson.

A symmetry enters the fermions and the bosons

The same pair of relative particles can “associated” with at least one with its 2# - 2 other local unfoldings and “be at the same time dissociated” with other pairs with local relative particles which it does not duplicate. It can thus be locally at the same time a fermion and a boson, according to points of view's.

But when it seems a fermion, it is like a pure fermion, or when it seems a boson, it is like a pure boson. A space bond duplicates or does not duplicate a space loop, in a completely binary way. Only exist mixtures of fermions which remain fermions and bosons which remain bosons.

Compounds of fermions and/or bosons can however constitute hybrid systems overall fermions - bosons. But inside these systems, the fermions remain fermions and the bosons remain bosons.

The fractional quantum Hall effect gives an example of such a mixture.

- When an electrical current passes in a driver, it produces various effects, of which a magnetic effect. The needle of a compass tends to deviate perpendicular to the wire.
- It also produces inside the driver an electric field, perpendicular to the driver. It is the Hall effect.

These two effects can combine and force the creation of “composite fermions”.

Packages of photons constitute bosons - whose spin is whole - which bind to an electron - whose spin is half-entirety - forming a fermion overall, quasi-particle which seems to have an electric charge being worth 1/3 of the electronic load.

Perhaps these currents generate a fractional quantum Hall effect of second generation, whose composite fermions have a load theoretically being worth 1/9 of the electronic load.

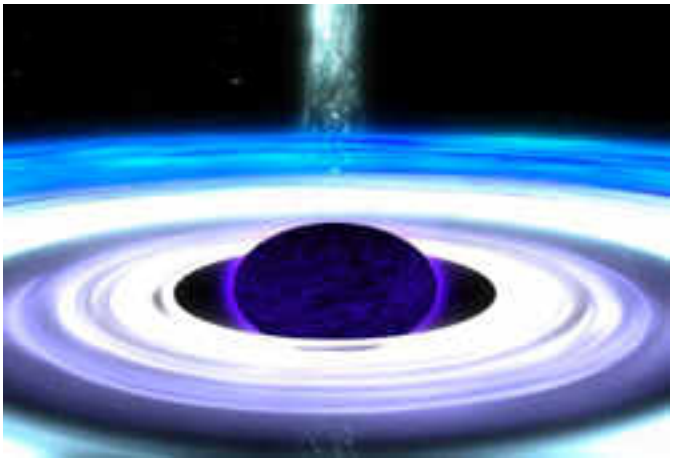
Section 10

BLACK HOLES

Return

We know all the universes like our pocket, since we always lived all there: -) In particular we know all that it preserves its unicity to deepest black holes.

“If one tackles the question by various points, the relativity and the quantum theory thus meet in the fact that both imply the need for looking at the world like an undivided whole in which all the parts of the Universe, including the observer and its instruments, are based and link themselves in only one totality.”
(David Bohm, the *plenitude of the Universe, the* Rock, 1987)



A sphere represents symbolically the horizon of this black hole

(Illustration: NASA)

Are the black holes holes in the space time?

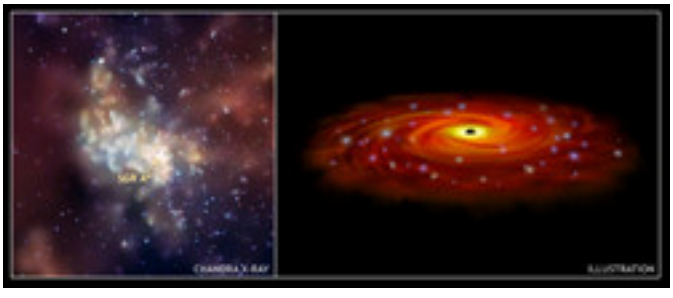
The black holes are stellar objects whose existence is yet only theoretical, although they undoubtedly are indirectly observed.

- When a star exhausted its fuel, several evolutions are possible, which depend on its mass. If the mass of what remains star is worth with more the 1,4 times the mass of the Sun (limit of Chandrasekhar) the principle of exclusion of Pauli makes it possible the electrons to be opposed to their gravitational compression, which gives dwarf white, whose temperature drops slowly.

- The degeneration of the matter of more massive stars (enters once and half and three solar masses) goes further. The fuel rarefies, the internal pressure of radiations which “inflates” star does not support more the external layers, which break down more or less brutally and disperse then in space. Electrons and protons of the heart remaining tend to amalgamate and give the neutrons of a “neutron star”. This object preserves its orbital kinetic moment, but its ray decreases considerably. The very fast rotation of pulsars follows.

- Starting from three solar masses, the gravitational field is so intense that it compresses all in a diameter of a few kilometers at the maximum. Such a pit captures and precipitates towards its central “singularity” all that crosses its “horizon of Schwarzschild”. An escape velocity higher than that of the light would be necessary to leave there - from where the metaphor “hole black”. The “metric one of Kerr” in addition describes the space time of a black hole in rotation.

The black holes most massive are located in particular at the center of the galaxies and the quasars. Micro very fugacious black holes would be also formed on quantum scales.



1. ***A gas cloud (photo),***
2. ***hide Sagitarius A*,***
   the central black hole of the Milky Way (illustration)
   (Photograph: NASA/CXC/MIT/F.K.Baganoff et al.
   Illustration: NASA/CXC/M.Weiss)

The black holes “are destroyed with small fire” with each absorption, a little before their horizon, of the only antiparticle of a pair particle-antiparticle virtual (radiation of Hawking). Follows a “evaporation” which then takes the shape of virtual particles “unmarried” and of photons. This emission of photons is equivalent to a thermal radiation, which little by little exhausts the energy and the matter of the black holes.

These particles constitutive of the radiation never were in contact with the information which the black holes are carrying. When this process of evaporation is finished, the information which the black holes absorb néantise it instead of changing? Would nature recycle all, everywhere, all the time, except in the black holes? Why would it authorize such a wasting? Moreover, certain effects would become orphan of their neantized cause, while certain causes would become orphan their neantized effects. Not sure that the laws of physics remain always respected. Not, all that is too improbable. There is surely something which I do not include/understand…

Imaginary representation of a black hole
(Illustration: DCU)

The veil of the “cosmic censure” survey

An object absorptive by a black hole continuous to duplicate itself everywhere in the remainder of the universe. It thus continues to exert an action on the quantum fluctuations of the relative particles constitutive of its 2# - 2 other formless unfoldings. The universe does not lose its trace. The heart of a black hole is never absolutely isolated from the remainder of the universe.

This dependence in the direction [captured object] towards [2# - 2 other formlessnesses] has reciprocal:

The state of energy, the matter, space, time in the center of the black holes does not depend only on what occurs there locally. It also depends on what occurs elsewhere in the universe, in particular in the respective environments on the 2# - 2 external unfoldings on the absorbed matter. I.e. even the most ploughed up states of the matter undergo nonlocal fluctuations.

One can imagine that a singular quantum foam fluctuates at the bottom of the black holes. Its pressure prevents the center from infinitely breaking down and it overcomes fantastic energies thus. It transforms the information absorptive by the black hole, which néantise thus not. Since this information remains, it can escape from the black holes by the quantum fluctuations of its external unfoldings. In-house, as into external, information is transformed, it néantise not.

Singular foam in the center of the black holes removes calculations describing the central singularity from infinite awkward. This singularity is not infinitely small, the gravitation is not infinite there and time is not null there. The more intense one gravitational field is indeed and the more time slows down compared to any reference frame external with this field. Inside the black holes relative time thus approaches zero in an asymptotic way, without never reaching zero. If we could see outside a particle falling inside a black hole, its fall would indefinitely without slow down to stop. If we seek to detect quantum fluctuations with the nonlocal causes, which come from the center of the black holes, it is necessary for us thus paradoxically to observe them among slowest, more “fixed”.

Cosmic rays of high energy

The more or less formless unfoldings of particularly brutal events at least partly explain the existence of exceptionally powerful cosmic rays, whose energy is higher than 1020 electronvolts. The energy of only one particle is then comparable with that which is necessary for claquer violently the door of a car. The origin of a quarter of the “starts gamma” remains still unexplained.

According to the data of the satellite *Reuven Ramaty High Energy Solar Spectroscopic To colour* in 2005, at least about fifty flashes gamma occur daily in the upper atmosphere. They are extremely violent one, projecting electrons at a speed close to that of the light. Perhaps some come from stormy clouds, but to date their origin did not receive an explanation yet.

- On the one hand these unexplained cosmic rays cannot come by far, because the cosmic basic microwave radiation would dissipate their energy appreciably.
- In addition they do not have any detectable origin in our local cluster of galaxies.

The nonseparable interactions, which are transmitted via the unfoldings of the particles, explain their presence at least partly. One at least of the 2# - 1 unfoldings of a pair of relative particles undergoes an event violate, for example effects of tide in the accretion disc of a black hole, the fusion of two neutron stars, an acceleration in the tension fields of a magnétar or the explosion of a star at the end of the lifetime in supernova - whatever in addition position in the universe of this event. Another unfolding of this pair of relative particles, more or less formless, more or less near to the Earth, then communicates “on line” the variation length which it undergoes in turbulences of an environment perhaps very remote. This unfolding itself, or disintegrations in cascades of particles which it causes in the Earth's atmosphere, can then be detected like cosmic rays of high energy… “emerged of nowhere”.

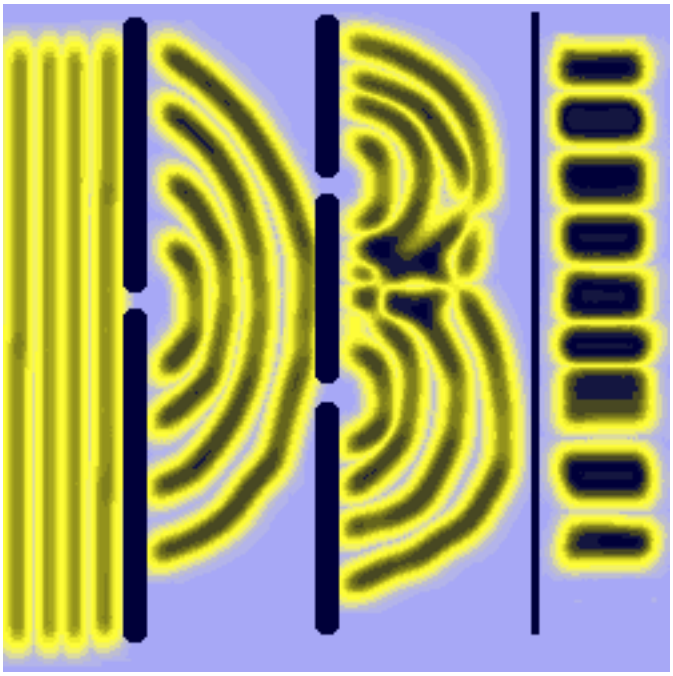
QUANTUM RELATIONS

Return

2# - 1 unfoldings of any system throw a new lighting on the heart of quantum mechanics.

“The most important problems of physics are not of mathématico-deductive nature, most essential are those which relate to the guiding principles.”
(Albert Einstein, letter with Michele Besso, *Correspondence 1903 - 1955,* Hermann, 1979)

The experiment of the slits of Young



Representation of the principle
experiment of the slits of Young

1. **The beam of particles is diffracted.**
2. **Its waves interfere between them:**
3. **They produce interference rings**
   (Illustration: DCU)

When the beam of particles decreases, of electrons for example, and that its intensity is reduced to projection successive individual particles, the distribution of specific spots obtained with is a priori random. However this succession of individual particles continues to draw interferences gradually. As if each individual particle could pass by the two slits at the same time, like a wave. This undulatory effect ceases when one of the two slits is blocked. Or, which returns to same, when one detects the slit by which each particle passes. The impacts then create a single spot on the third screen. The particles present in this case their corpuscular aspect.

A particle thus makes its aspect undulatory or corpuscular more or less probable, according to the way in which it is observed: it is a superposition of these two complementary states.

- Each emitted particle is accompanied by a certain number of its local unfoldings, more or less formless.

- Waves of relative particles carry these unfoldings. They pass by the two slits and the unfoldings interfere between them. The provision of the impacts on the second screen reflects the resulting waves.

- When one of the two slits is blocked, these interferences disappear and only the not-locality disturbs the waves, from where the corpuscular provision of the impacts.

Existence of a minimal state of energy

The waves of relative particles do not carry the matter particles as with the beach a wave animates a sand grain. Their movement transmits duplicated formlessnesses, which at every moment have a more or less great probability locally of being formed.

The undulatory aspect of the particles joins thus their corpuscular aspect in the form of waves of probability of presence. Even where apparently it does not occur anything, in the surrounding waves of relative particles, it is possible that the probability of presence of a

great number of various and varied particles either nonnull. When they appear “spontaneously”, these various and varied particles locally pass the formless ones to formed. They are then not deprived to interact between them. The result of their changes of energy, it is “false a quantum vacuum”, where myriads of particles and antiparticles transitory, “virtual”, are created “spontaneously” permanently, to destroy itself as quickly as they appeared.

A movement completely no one in 2# - 1 different environments is indeed extremely improbable. The not-locality prohibited thus with vaguenesses a null movement. It imposes a minimal state of energy to them, which more or less makes pass from formed to formless and formless to formed the particles which the waves are carrying.

However we never observe directly the particles fluctuate: our observations indirect, are only calculated. Fluctuations in all kinds indeed form the world in which we live, but we let us not be directly aware of it, because they take place on too small scales for our five directions, at the same time in space and time. If we could directly see the particles, the matter would seem to lose its consistency. Moment after moment, our environment would volitilize more or less in unspecified fogs. When we look at “normally” a statue, we only see it where its particles are most probably present. This work conceals much more movements than our five directions show it to us.

Relations of indetermination of Heisenberg

To locate an object, it should obviously be detected, i.e. to interpret a disturbance. For example, to locate the Moon, it is necessary to interpret a reflexion of light.

But what does it occur when a microscopic particle is lit?

- With a light of strong energy, of which the wavelength is narrow, it is possible to locate the particle rather precisely. On the other hand this powerful lighting modifies the kinetic energy of the particle. The velocity measurement is not very precise.
- With a light of weak energy, of which the wavelength is large, it is not possible to locate the particle precisely. On the other hand this weak lighting hardly modifies the kinetic energy of the particle. The velocity measurement is rather precise.

Position and momentum (or angular orientation and kinetic moment) of a particle cannot thus be detected simultaneously with precision, it acts of combined variables.

The energy of a wave fluctuates moreover so that the shorter the lapse of time considered is, the less the fluctuations appear smoothed by an average (by a “blur” in the resolution of measurements) and the more they can vary in important proportions. The more energy of

a particle is considered on a short lapse of time, the more measurement is vague.

> The product of the position by the momentum must be at least of about size of the quantum of action h/2pi. The same applies to product of the angular orientation by the kinetic moment, like product of energy by time.

Our perception of nature comes from myriads and myriads from points of view added the ones to the others. Number # of space loops is indeed very large.

- If we remain open “in parallel” to all the points of view, they more or less mix all the ones with the others, they are more or less fuzzy - from where a loss of information.
- But if we open only from the sought points of view, which implies filterings and eliminations, we close ourselves at the same time from all the points of view considered as superfluities - from where there still a loss of information.

The result, it is that we cannot seek precision for all at the same time. Any search for precision in a category from point of view takes place with the detriment of the precision in at least another category.

Superposition of states

> **Famous receipt of quantum kitchen.**
> Lock up a cat of quite alive Schrödinger and a capsule of volatile poison in a tight and opaque box. A random device will break or not the capsule, leaving with the animal 50 chances of survival on 100. Leave mijoter fifteen minutes.

The good direction says to us that when we open the box, the cat either alive, or will have died, but not both at the same time. From a mathematical point of view, it however goes from there differently. The equation of Schrödinger, which describes the state of a quantum system, is linear. If there is more than one solution, then the solutions themselves, more all the intermediate solutions, satisfy the equation. There is, from this mathematical point of view, no contradiction so that the cat is in an unspecified state, mixes “state living” and “of dead state”. There is then “superposition of states” of the cat.

In fact, such mishaps do not arrive at the cats, but at their constitutive particles.

> The superposition of states of a particle, it is in the absolute the superposition of its **2#**

- 1 unfoldings, in **2# - 1** different environments. I.e. in **1** local environment where it exists in a relatively formed state, more **2# - 2** nonlocal environments, where it exists in more or less formless states.

To take again the example of the cat, the animal more or less “alive” and “died” depending on the state of its unfoldings, which are more or less formed and formless.

We now will see that the detection of a particle “selects” one of these 2# - 1 states.

The detection of something, it is the selection of a formlessness: the function of wave psi

2# - 1 relative formlessnesses of an unspecified particle constitute a universally diffuse unit. Each one of them has more one probability of presence, at an unspecified place of the universe, that a “real” presence. The more each one of them is locally formed, the more its probability of local presence is large. The function of wave psi thus describes the waves of probability of presence of the microscopic objects, for a given volume.

- As long as it is not detected some share, an unspecified particle exists everywhere where exists one of its 2# - 1 unfoldings relatively formless. The “function of wave” which describes this probability of presence statistically known as “is spread out”, since the 2# - 1 formlessnesses are distributed everywhere in the universe. They have all then the same relative statute. As long as it is not detected, any particle is thus in the unspecified state corresponding to the superposition of its 2# - 1 relative formlessnesses.

- On the other hand a detection selects one of these 2# - 1 formlessnesses, which is different then from the others. It acquires a statute privileged compared to the others. It becomes indeed formed and the others are more or less formless compared to it. When it is detected, the particle is restricted locally with only one of its 2# - 1 formlessnesses. There is then “reduction” of the function of wave and “décohérence”. It is the detection which makes pass an object of the state “of formless formlessness like the 2# - 2 others” with the state “of formed formlessness different from the 2# - 2 others”.

The relative particles constitutive of a detected particle continue nevertheless to undergo the interactions of the 2# - 2 nonlocal environments where each one of them is duplicated. The movement of the detected particle thus continues to fluctuate following nonlocal interactions, exactly as if the particle were not detected. Nothing objectively distinguishes a particle detected from a not detected particle. As for all the remainder, could one say,

detection is only one business from point of view, of reference frames.

The multiple worlds of Hugh Everett are not far.

All the superimposed quantum states (unspecified) exist in parallel. When there is décohérence, there is junction of the observer in the world corresponding to the one of these states. What does not prevent the worlds corresponding to the states complementary to exist them too. These worlds thus coexist as the sum of all the possible alternatives of all the quantum states present.

The worlds of Everett and formlessnesses of the DCU have common basic ideas.

Quantum fields

A quantum field is a space of the physical states (oscillators) defined in any point of the space time, in which mass and energy are equivalent and are preserved overall. The fields are combined between them, which gives place to multiple transformations masses - energy. Particles are created and destroyed permanently.

- 2# - 2 formless unfoldings (not buildings) of an object or an interaction constitute fundamental quantum fields.
- The formed unfolding for its part constitutes an excited quantum field.

Distributed everywhere in the universe, the fundamental quantum fields fluctuate so that they unceasingly reveal “in the vacuum”, in a specific way, of the more or less fugacious virtual particles. They thus make “grésiller” the quantum vacuum, which is more one kind of particular state of the matter, that a real absence of matter.

They are however not collections of oscillators in an infinite number, which would be equivalent to an infinite energy. The field which contains all the others, the universe itself, has number # finished of oscillators. All its subdivisions thus have they also a finished number of oscillators - thus a finished energy.

The experiment reinforces quantum mechanics

In 1982, the physicist Alain Aspect and his team carried out a famous experiment, at the Institute of Optics of Orsay. Two photons correlated, in an unspecified quantum state, separate and are sent on detectors which are rather distant one from the other so that the particles do not have time to exchange interactions at the speed indépassable of the light. However, the detection of the one of the two particles “forces” the determination of its state. The observation shows that this detection increases the probability of finding the other particle in a complementary state. The coefficient of correlation is such as the “inequalities of Bell” are violated. How thus the second particle can “know instantaneously” the state of the detected particle and fix its own state consequently? Such particles are in an “intricate” state. They constitute an inseparable unit, in which each one constitutes a component. Other experiments of the same kind, like that of the team of Anton Zeilinger, in Innsbruck in 1998, violent one they also the traditional locality.

The traditional locality and/or objectivity must thus be blamed. We need a new realism, which sticks with what we know of nature.

The “instantaneous interactions” between correlated particles can be explained like effects of the unfoldings of the space bonds. A “exchange” of information no one takes place between a whole of relative particles and… this same duplicated unit. A distance separates them in the relative one, but not in the absolute. It is thus not a speed higher than that of the light which allows the results observed, but a *null* speed.

Nevertheless certain individual characteristics of the intricate objects, linked by quantum not-separability, seem necessarily different, since seen under different angles, since different space bonds. Respective formlessnesses of the intricate objects are not necessarily identical. But in the absolute, they are at least partly the same systems.

If the experiments like that of Alain Aspect did not violate the inequalities of Bell (i.e. the traditional locality), the description of universal coherence would be inevitably false. If there were no intrication indeed, there would be no mutual prolongations and unfoldings of space loops, therefore not of space loops. There would not be any more but to go to lie down.

The DCU could have predicted the result of these experiments. Failing to make predictions, it makes “postdictions”.

Neopositivism with the neorealism quantum

The quantum not-locality generalizes more relativistic realism “traditional” than it violates it:

- On the one hand, the not-locality must be allowed such as it makes consensus in physics today. I.e. in conformity with the interpretation of Copenhagen (see low). What does not remove anything with the fact that quantum mechanics can be integrated in its current state in a new interpretation, more general.

- In addition, the “generalized” quantum not-locality suggests a coherent, satisfactory neorealism for the reason, which helps to include/understand what occurs in the depths from nature.

Bohr and Einstein could reconcile themselves: each one with its way, they have both reason.

- The microscopic phenomena have nonlocal characteristics which make somewhat them “imperceptible”, probabilistic: Bohr rightly.
- But they exist independently of the experimental context, of statistical knowledge that we have some: Einstein rightly.

It is not the quantum mechanics which is incomplete, but its interpretation.

The interpretation of Copenhagen

Its point of organ goes back to 1927, with the fifth Solvay congress, which was not held in Copenhagen, but in Brussels. In Copenhagen, the institute of physique directed by Niels Bohr constitutes a medium favourable with the new ideas.

Participants in the Solvay congress, in 1927
(Image copyright History of Science Collections
University of Oklahoma Libraries)

It is at this time that the opposition between Bohr and Einstein enters the legend.

If it is considered that nothing can exceed the speed of the light, then two objects sufficiently distant one from the other so that they do not have a causal relation, know each one a local reality different from the local reality of the other. But what a local reality? It is a detected system, measured of course. As a long time as it is not measured, one can nothing say some. As long as nothing is detected, nothing distinguishes a pair from particles of another pair, whatever the distances concerned. In other words, a particle can extremely well interact quasi instantaneously with another, whereas an unspecified distance separates them. The particles have indeed certain undulatory characteristics, which allot a vague localization to them - a wave cannot be precisely localised in the sea.

Because of this not-locality, the process of entry and exit of only one particle in a reaction is basically unspecified. The entry and the exit indeed, are not distinguished one from the other in a binary way, they are more or less confused. The process can take a broad range of unforeseeable values. All that one can then do, it is to try to evaluate the “average” probability to find overall a whole of particles in a certain state at the entry, then the probability of finding it in another state at the exit. This astonishing use of the probabilities really makes it possible to calculate and envisage the evolution of the microscopic phenomena most various.

But Einstein is not satisfied such designs:

“Of course, this reasoning completely leaves in the shade the processes affecting the individual systems; those are completely eliminated from the representation provided by the mode of statistical explanation.
However I put the question:
Is there really a physicist to think that we will have never the least seen on these

important modifications of the individual systems, on their structure and their causality, while at the same time these individual processes, thanks to these marvellous inventions which are the wilson cloud chamber and the Geiger counter, approached the experimentation so much? Such a thought has beautiful being free from logical contradiction, it runs up against my scientific instinct so highly that I will inlassablement endeavour inlassablement to seek a mode of more complete explanation." (Jacques Merleau-Ponty, Francoise Balibar, *Albert Einstein, Works chosen,* Volume 5, Science, ethics, philosophy, Threshold/CNRS, 1991)

Thus let us seek "hidden variables", which allow a more complete vision, more rational of nature. But calculations, then the become experiments of thought of the real experiments, plead in favour of Bohr. The "hidden variables" hide too well to exist.

Only one particle has nevertheless a function of wave, but the quantum indetermination remains. There is a more or less great probability of rather finding it at a place than with another, in a state of energy rather than in another, etc the analysis of becoming of only one particle in an abstract space of configuration covers in real space that with the average behavior, more or less probable, of a whole of particles. The "important modifications of the individual systems, on their structure and their causality" drown in such a statistical blur that the physicist Bernard d' Espagnat speaks about "buckled reality".

A coin of currency is in my pocket. I do not observe it. I could play with it with pile or face. If I launched it, it would fall down on pile with a probability of fifty chances in a hundred and face with a probability of fifty chances in a hundred. Then does it float in an unspecified state in my pocket, superposition of its two statistical reports and the corresponding intermediate states? The answer is clearly "not". Nothing stirs up in my pocket.

An explanation in conformity with quantum mechanics and the scientific instinct of Einstein, it is that on the scale of the universe of the 2# - 1 exists a superposition formlessnesses of the part. But with it only, the relatively formed formlessness which is in my pocket is not in a superposition of states. It is quite localised and in only one of its 2# - 1 universal states. What does not prevent its constitutive relative particles from undergoing all kinds of fluctuations to the nonlocal causes.

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All these bizarreries are brought back basically to only one spatiotemporelle dimension: the universe is intrinsically coherent. Whereas is it adaptation of human civilization to this rationality of nature?

Brief replies

in the next section
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Change of register!

After the natural aspect, here the human aspect universal coherence

And the individual in all that? We spoke:

- **the infinitely small one**
- **the infinitely large one**
- **but until now we somewhat neglected an intermediate scale: ourselves.**

(Reproduction: The color with the wire of the centuries)

- One of the first “hiéroglyphes”,
  drawn on a wall of the Chauvet cave, in France, 30.000 years ago.
- One of the last hiéroglyphes in date is this one:**: -)**
- Always the same language…

Increase in complexity

The creation of a point moreover at every moment moreover at every moment transforms division into segments of the continuation of points and moments. The limits of these divisions evolve/move permanently and the segments slip, cross, interfere. However it is about space and the segments “see” the ones the others by their depth: they are prolonged mutually. More or less synchronous myriads of space bonds thus create fluctuating spaces of relative particles. Multiple systems are imbricated one in another, are structured, are done and are demolished permanently. The complexity of the universe increases at every moment.

Absolutely unconscious, deprived of any project, nature multiplies myriads and myriads of interactions more or less different from/to each other, in myriads and myriads of local environments more or less different from/to each other. The near total of these blind “tests” does not give anything alive good, except in certain highly improbable cases, but which occur nevertheless. The emergence of alive is thus, to some extent, a battle gained by the improbable one against the probable one. What is improbable indeed, is not inevitably impossible.

With what do have we to adapt to survive?

To have lived without knowing why, under conditions that essentially we did not choose. To have sought with better living, in a way or of another, having acquired an experiment, a culture… Which values can help me in the difficult moments? What “to make a success of its life?” And then nothing. Would the struggle for life be thus as basically useless as is the

fight against death?

Such doubts agitate the consciences since the night of times. We wonder about the “construction of the world” to know what conditions our own existential construction. Which is our place in nature, which role to play, which values to adopt, to carry out a livable life?

We adapt all so that we regard as nature. Generally accepted ideas, more or less rational reflexions, concerning the naturalness, the supernatural one, are transmitted from generation to generation. They change more or less in the history and according to areas', modifying dominant metaphysics at the same time. They are translated the every day by more or less conscious standpoint, by more or less considered acts.

Prehistory

Men, women, children are brought together in a moved back part of their cave. Drawings more or less tangle up are traced on the wall. With the moving gleam of a wood fire, these frescos seem to become deformed, show animated scenes.

The man-lion of Vogelherd, an ivory statuette of mammoth, carved 32 000 years ago
(Photograph: The man lion)

Some figurines pass with hand in hand. They represent the human ones, hybrid animals or beings. The half-light dancing confers a kind of supernatural life to them. Each one allots the capacities to them which it imagines. Some require of them with more or less enthusiasm of exaucer such or such wish. In the event of anger between individuals or groups, the enemy statuettes are destroyed, to break the hopes with which they are charged. (Interpretation of elements of an article of Patrick Jean-baptiste with Bernadette Arnaud, Science and Future of January 2004, *first idols.*)

When oblong small planks attached at the end of cords whirl with the top of the heads, they produce humming characteristic of the rhombes, a kind of echo of supernatural worlds. A member of the tribe suffers from a fracture. This moment of happiness and mysticism assistance to endure its sufferings. The rarer food is indeed, the more it is necessary to take great risks to capture animals. It is also a moment of creativity, during which, at the same time, fantastic stories and the words are outlined to

tell them. Perhaps the storytellers imagine explanations to interrogations like this one:

> Water has its animals, the ground has to them his, the air has to them his. Why fire have doesn't its animals?

The prehistoric life is not therefore an Eden. Daily need through law and the anthropophagy is not excluded from manners considered as normals. A mutual aid guided by collective survival in the long run is yet only embryonic.

In addition dying them visions have, which they report sometimes, similar to those brought back nowadays by Raymond Moody. With the wire of time, these elements become deformed, they grow bigger like rumours. They become soon legends, signs of recognition, common explanatory models. The individual adopts the myths of the group, in exchange of what the group adopts the individual. He follows a conformism such as crowned rigidifies himself, he becomes an absolute capacity, quickly incarnated by the Shaman become priest. Nobody thus assists from the sanguinary victims of legends: the sacrifices, which they are human or animal, are regarded as the price to pay to ensure the cohesion of the tribe. Very called into question of the dogma the traitor exposes to social exclusion and indirectly to dead - or directly to a sentence of death.

Human populations essaiment while following the shores and the rivers. With each new establishment, the dogma locally in force forgets some of its aspects and it adopts others of them: he also made way. It diversifies and it tends to reflect the metaphysics of the place and the moment.

But a general idea remains. The individual and nature are linked by their ceaseless interactions, they belong both to the same unit. Since the individual is alive, it is that nature is too. Vital principles are with work in the world, all the more worrying as they remain hidden. So that the hunger them courrouce not, it is necessary to sacrifice to these entities of the animals or the human beings.

Pedra C ground

The Aztec religious sun draws the language to claim the human blood which it needs to live. Its death would cause the end of the world.
(Reproduction: Wikipedia)

Paradoxically, more the study of nature advances, more the subjects of incomprehension accumulate. But in all the continents the explanations are easy to find: with each phenomenon its god. For example, among Greeks, Poséidon, god of the sea, endorse the responsibility for the earthquakes. The Latin historian Varron counts some 30.000 divinities thus.

Ballottés wisp of straws to the liking of whimsical, main powers and slaves do not choose their fate. Not more than one chooses to be a man or a woman, plebeian king or, full with muscles or full with spirit, to depend on such or such astrological sign. Soldiers, brigands, pirates, traffickers, are obviously undergone. As the need is undergone for sowing to collect or to knead the flour to manufacture bread. With less, of course, to enter in communion with the spiritual worlds, to have supernatural capacities. What makes it possible to have taken on the imponderable one. For example a slave sold to Apollon famous is freed.

In India, at the same time, the system incipient hereditary castes shows a certain universality in the belief in an undergone destiny, with the supernatural “causes”.

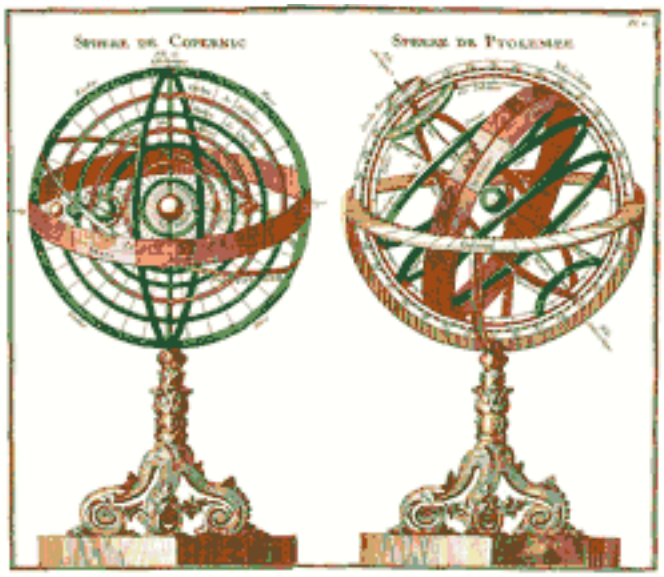
The primitive unit of the man and nature is exhausted more and more, in metaphysics. Too many things, definitely, are incomprehensible. Who can explain, for example, his sexual instincts? Why the seasons exist do? What is there in the sky, under the Earth? In fact, all can light, but with the proviso of locating each event in a particular world, where its causes and its effects are connected logically. If something is not explainable in a world, it is it in another world. For example, the Bible speaks about the “kingdom of heaven” as of a

universe disjoins reality ground with ground, with its own physical laws. In any case, there is not more human unit than there are some in nature and the ones do not live in the same world as the others. *“The slave is a thing which with the word”* issues in a peremptory way the Roman texts legal - the Greeks it think too. Even large Aristote was slave! What does not prevent the social reality of the moment to know all the nuances of the constraint. To each social status correspond of the specific natural laws, which grant dignity more or less, of conscience. Since one can make turn a mill with slaves, why use the current of a river? It would be to deprive itself of the quite useful world of those which are good to only make turn a wheel. The industrial revolution will be done much later, with another metaphysics.

In the final analysis, of the unifying principles exist

The présocratiques ones develop the idea of the numbers at first approximation, of the atoms. Then “the harmony comes from the celestial spheres” elaborate of Pythagore in Ptolémée… Many things which appear without relationship between them in fact are linked by mutual influences… And if a single cause of the causes created all that exists? The collective catastrophes are surely allotted to the same divine anger. Example: the Flood, in the Old Will. Nature thus does not appear so capricious only that. Its strings are indeed drawn by the hand from a single god.

Then with single god, single king by divine right, with the absolute capacity of course, without what it would not be logical. Thus obey the authority of the moment, churls, and you will adapt to nature. The idea of diversity in the unit progresses little by little in the cultures to the wire of the centuries. For example the Christian mystery of the Trinity: three people in one; the Father, the Son and Holy Spirit linked as a God. The world of the monastery, that of the castle, that of the countryside, are plain like the fingers of the hand. Close connections thus bind clergy, capacity and ways of life. Since the priest and the king are not things, the serf is not it either.

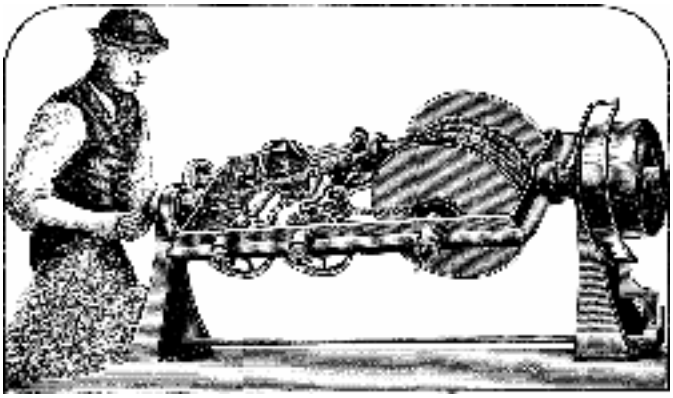


Sphere of Copernic - Sphere of Ptolémée
(Illustration: Louis Brion of the Tower,
in Methodical Atlas General,
Louis-Charles Desnos, Paris, 1768)

In fact, if the reason knew nature well, the man would adapt effectively to his medium and progress would solve human miseries. To the XVIII E century, the industrial revolution and agricultural incipient supposes that safety does not come as well from the Sky as of the Earth. The celestial lights fade with the profit of those of the reason.

Here the XIX E century

Two centuries were necessary to generalization in general public of the designs mechanists of Bruno, Galileo, Descartes, Boyle and Newton, in particular. To the middle-class company, which mechanizes the production, corresponds a quasi mechanical design of the universe. Molecules, waves and planets constitute the wheels of a basically foreseeable unit. This “natural” determinism of physics nourishes a “social” determinism which encourages to fall under rigid and inescapable logics. Capitalism leads thus to prosperity, the wars or the revolutions lead to the victory, the virtue leads to the paradise. The various versions from dialectical mark for their part the search for a coherence “mechanist” of nature.



Machine to twist the hay
(Scientific American No 446 of July 19, 1884)
(Reproduction: Project Gutenberg)

However something bell in this beautiful mechanics. The law of Wien accounts well for the spectral composition of the ultraviolet rays emitted by a furnace carried to more 1000°, but it does not account for the infra-reds. As for the law of Rayleigh-Jean, it is the opposite: it accounts well for the infra-reds, but not of the ultraviolet rays. Moreover, one infinity of modes of oscillations are a priori possible in the radiation “of black body” of the furnace, where energy should thus be infinite - but it is not it. Nothing to arrange, the spectra of the atoms posts lines and this discontinuity remains unexplained. Max Planck completes the unification of electromagnetism then. Energies and frequencies are multiple entireties of the “Planck's constant” h. the new quantum theory accounts for the experiment and physics falls down thus on its legs. But the reason keeps the head with back. Does quantum discontinuities of nature, that correspond to what, in reality? A veil of incomprehension thickens. Even mathematics is at that time prone to debates in connection with the infinite one, of the validity of the methods of demonstration, their own bases. Albert Einstein however opens a prospect for comprehension salutary, by describing the physical implications of the constancy the speed of the light in the vacuum. As for the quantified light waves, it is about their corpuscular component. But thirty years later, “the school of Copenhagen” will proclaim that all that we can say of nature reduces to interferences of abstract waves of probability of presence.

Since antiquity, plus the study of nature advances, the subjects of incomprehension accumulate.

Exceeded by a physics which it does not include/understand, metaphysics does not play any more its explanatory part, then it is marginalized.

For example Bergson claims in 1922, in Duration and simultaneity, that “single Time and the Extent independent of the duration remain on the assumption of Einstein taken in a pure state: they remain what they always were for the common direction.”

Except that a rocket which moves away from the Earth, it is not the same thing as

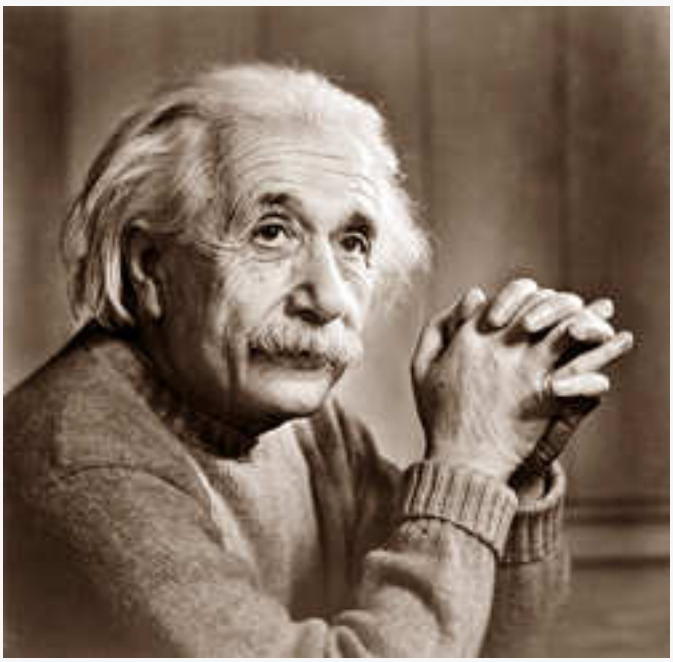
the Earth which moves away from the rocket. The universe indeed is not made up only of one rocket and the Earth. Myriads of distances vary between the rocket moving and the other bodies of the universe, whereas their variations remain relatively constant between the Earth and the remainder of the universe. When it accelerates, the rocket overcomes an inertia which the Earth does not overcome; its relative time slows down compared to that of the Earth, whereas that of the Earth does not slow down compared to that of the rocket. As for measured time aboard rocket, it is real, unless the clocks can enivrer. As is that measured on the Earth.

There is in this asymmetry rocket - Ground a characterized rape of the common direction: nature is stranger than the intuitionne Bergson.

The scientific popularization, in particular in physics and cosmology, replaces in fact metaphysics. With a perverse effect with the key: it seems with much that one can “discuss” in physics like one does it in philosophy, which evacuates any validation by a rigorous experimentation. Science thus seems to be a school of opinions like the others. For example, much do not distinguish astronomy from astrology, which appears to them to be based in the same study of the sky, approached with different convictions.

… BUT WE PRE-EMPT THERE the XX E CENTURY

The XX E century remains unable to associate a realistic image of the universe its mathematical results, to the great displeasure of Einstein.



Albert Einstein in 1948
(Photograph: Yousuf Karsh collection)

In 1945 Albert Einstein summarizes the vacuum, the anguish metaphysics of the century, in a letter of condolence. “Us others, human, let us live in major part with a misleading impression of safety and a feeling to be at home in a physical and human environment which seems familiar and worthy of confidence. But, when the course envisaged of the everyday life is stopped, we realize that we are like shipwrecked men trying on the open sea to keep balance on a poor wretch board; we forgot from where we come and we are unaware of towards which place we derive.”

(*Correspondence,* InterÉditions, 1980)

In the absurdity, chaos, is born a need for “sure” refuges

We experienced a facet of nature with what we live in the company. The majority thus melt their metaphysics on their personal experiment of the life. To feel lost in a monstrous world, it is in a way or another to feel nature like a basically unjust mantle. The more chaotic one social condition is, the more this feeling is reinforced. Then on what to count to leave itself there? Many tends to be hung up again with the “values” which they believe solid. For example, nationalism is an attempt to find refuge in a “strong castle” whose State would constitute the “ramparts”. That they are “middle-class” or “working”, of the also rigid structures political, as authoritative as possible kinds of artificial political coherences in a world form where chaos would threaten of all shares. An authoritative political order, it is a kind of moral blockhouse defying the general storm locally. Are created thus in the spirits of schematizations, whose features delimit borders “of good direction”. There is for example the identity “property” of “my bosses”, of “my people”, “our national saving”… as much in chimerical “properties”, as many moral barbed wires. Each one more or less bitterly defends “its” blockhouse, where it has its practices and its reference marks. Political and religious sectarianisms, the sexism, the homophobie, racism, the competitions between bands of young people… many seemingly disparate social phenomena hide their common denominator: the defense of “ramparts” felt like making safe. Logics of exclusion are standardized thus, of intolerance. They lead to nationalisms, the integrisms, racisms, corporatisms, the sects more or less delirious chocolate éclairs. The Community folds and the influence of the lobbies gain ground. Behind expressions of alleviating appearance like “each one at home” the search for a world transformed into identity zoo is hiding place, whose divisions are supposed to be opposed to dreaded generalizations of some social chaos. How indeed not to be afraid to make, or to let do anything, in the absence of narrow limits, of parapets, supports? There is nothing more urgent than to force the individuals to adopt such or such behavior: in chaos, manners can only derive, become déliquescentes. Those which cross the fixed limits scramble the reference marks, they “foutent the shit”. They must be the subject of a repression without call. Any political easing, all “laxism” takes a suicidal or criminal value. Any transformation of a rather rigid and immutable social order never revêt an intolerably bold character. As much to open with all the dangers. As much to go to the battle field with an armour of operetta. As much to want to live in a world which does not exist.

Change in continuity

Supported by the masses, of the revolutionists manage to replace the employers' dictatorship by the dictatorship of a party, initially in 1917 in Russia, then in other countries. But their authoritarianism set up in social system the conduit to reproduce in another form the former inequalities and anything to revolutionize on the bottom. The masses, consider, have illusions, then it is imperative to exert in their opposition a relentless “dictatorship revolutionary”, to force the herd to make its own happiness.

The revolutions thus do not revolutionize inevitably last metaphysics. A rigid middle-class order working order such a rigid, alone succeeds changes the shape of the social refuges.

Massively maltreated, the proletarians massively withdraw their support for the “revolutionary dictatorship”, which early or late ends up scuttling, by breaking down, or going to throw itself in the arms of its “enemies of class”. The next time, it will be necessary that the revolutionary capacity responsabilise and helps the populations democratically. Not that it fights them like obstacles postponed, right goods to obey to him unconditionally. It is with the party to put at the service masses, it is not with the masses to be put at the service of the party. The militants, the workers, the young people, must find near the party the explanations, the debates, the formation, research which they need. Not “brilliant” orders and “benevolent” handling of “revolutionary superiors”. In the absence of such a help, it any more but does not remain only to be formed and to militate with the means of the edge for a world righter.

A poster of May 1968
(Reproduction: Revolutionary songs)

Nature appears irrational

An original thing exploded in four spatiotemporelles dimensions, without it being known from where it left. After this “miracle” of the big-bang, which is corpuscular is jointly undulatory, and while waiting for the thermal death of stars, the pendulums indicate that it is “midnight in the century”. In darkness of the Nazism, Stalinism, as in those of “the balance of terror”, of the “world-wide crisis”, the “debt of the Third World”, the “thatcherism”, the “attacks to the human rights” or the threatened environment, the human capacities of creation do not carry it in an obvious way on the capacities of destruction. If “disappeared” from all the times are not assassinated per million, whereas became million mothers, sisters, wire? Malnutrition, the lack of elementary care are dawning each of the thousands of deaths, while the human rights do not prevent a “semi-official” slavery still massive: that of children, women, soldiers… Between 1961 and 1971 the American army pours on Communism, forgiveness, on Vietnam, of tens of million liters “of orange agent”, a defoliant containing of dioxane, violent poison which creates irreversible handicaps.

All these horrors do not have a direction. Then is nature it basically what? Surely not something of rational. Even in the “civilized” countries known as, conditioned by the social nonsense in which they live, of the million and the million people adopt prescientific designs. According to them the Sun turns around the Earth, the horoscopes predict another thing which the everyday life present, the world is invariable, of the international plots are the engine of the history…

To survive at all costs

In this absurd world, deprived of coherence, fundamental unit, the risks of dislocation are great. The large official structures inspire more and more by concern. This feeling of brittleness is born a fear of the social explosion which encourages having them and the leaders to be yielded more or less temporarily to certain claims, in particular as regards instruction, of health, from law the labour.

Symbolized by Titanic, the State runs or is likely to run. Then with the wire of the century, the companies are regarded more and more as rescue rafts in chaos. Essence, it is not to drown. In short: “We make the difficult ones, neither in connection with the life buoys which are launched to us, nor on which launches them to us. We defend it with what we hang up again ourselves, even if it means to perpetuate injustices. By surviving, we start will live perhaps better afterwards.”

> The world balance of the payments lets appear that the whole of the countries buys more than it does not sell. Gigantic occult inheritances drawn from a semi-official wild capitalism (trade of weapons, drug, corruption, tax evasion…) finance this deficit apart from any democratic control.
> (According to Jean-François Couvrat and Nicolas Pless, the *hidden face of the world economy,* Hatier, 1988)

When one has the privilege to be able to hang up again itself with a company, one likes it. It makes us live, then make live it. In fact not, it does not make us live, it makes us work, it is not the same thing. But in an irrational nature, it is unfortunately like the State, without slackening confronted with the risk of shipwreck. Its survival justifies all the sacrifices. Finally not, not all sacrifices, preferably those of the competitors, the employees, the subordinates, the consumers, the residents, most stripped, the women, the immigrant workers, the young people, the old men, the prospective customers “targeted” by a polluting publicity, repressed trade unionists, unemployeds, taxpayers, generations future, of such or such social category, industrially maltreated animals… The survival of the company justifies all the “sacrifices of the others”. Rather to succeed with the sweat of the face of the others - there is the right. Thus if there is the right, it is that one can do it. Those which resist, it is necessary to try to buy them or to break them. “Gagneurs” do they justify their privileges by loads and risks undergone essentially by others, but what they claim to assume? A little dignity, I request from you, do not ressuscitons a debate of another age. The peasant become paid works for the lord become owner in exchange of a wage “protection”. Rather to impose a feudal capacity in the companies, whereas often after the door of exit, the mayors and the deputies are democratically elected.

If you grassement are grassement paid to reduce the purchasing power of the others, you belong to “better”. If you preserve your employment by laying off others, you belong to “better”. If you make feel guilty workers who report to you more than they cost you, you belong to “better”. If you do not see the need for curing social monstrosities because they are paid by others, you belong to “better”. If you exaltez good citizenship, the values morals, for better sailing with counter-current of the interest general, you are politically courageous. If, failing to seek solutions, you find promises, you are realistic. Dominant oils preach also solidarity, but only when that arranges them, is not necessary to talk cock. Oh of course it does not have only the owners there. The hooligans who “type one is delirious”, the gangsters small and large, many other poisonous, are not models of social utility. But “the best” shows them the example. That which crushes the others believes to prove its high level of skill, it feels to belong to the highest levels of society.

In the absurdity, not of another choice that absurdity

The employees have the choice only between sacrificing themselves for the good competitiveness of the companies and sacrificing themselves because of the bad competitiveness of the companies. Then they are sacrificed. Many victims “understand” that because of a competition without pity, they must grant “efforts”. They feel this employers' “logic” like a refuge in social chaos. What leads them to support their “guards” until in the secrecy of the insulators.

The urgency is with aggressiveness managériale inside the companies and commercial aggressiveness outwards. The “free” “market” more (predatory) possible is essential more and more in all the fields of the life. It is about an economic pseudo-democracy founded on the inequality, where the voice of a rich person counts more than that of poor. The freedom of the fox in the free hen house is opposed to any democratic planning economy. The deficit of the States grows hollow under the pressure of a demagogy which regards the taxes as an irrational investment. In any event, with what do you want to reflect in an incoherent universe? It is really to waste its time! The most succeeded reflexions can only be lost in the basically absurd features of problems because basically unresolved. (In an incoherent universe is there no coherent social solution, it is easy to include/understand, not?) *“+ B has = C”*, here all that the intellectuals have to say to us! Nature is like that, incoherent and unresolved, one can nothing, *“it* there *does not have there an alternative”*. To wonder whether 10 or 20 % of the population *“deserve”* to have more half of the richnesses of a country does not have a direction. Not more than to wonder whether it is right that the wages of the ones are more than thousand times superior to that of the others. Do the poor deserve to them misery? Poor question! All and sundry *on the open sea* hang up again with the *“poor wretches boards”* that the chance grants to them, here all. Which philosophy life to explain it to his/her children? To survive without putting questions. That it is the concrete one, all the remainder is only metaphysical. It is like that and it will be always like that. All the class struggles of the world will never be able nothing there.

At the end of this logic, terrorist temptation is large. The enemy is so vulnerable on his ridiculous rafts! Some flicks a little more horrible than the others are surely enough to overcome it.

Funeral oration of the XX E century

In a world felt as deprived of direction, based on the exploitation, the oppression of the man by the man, civilization generally brings back to a management cruelty.

Here a table. That of a future whose certain aspects seem to me currently contained germinates about it in the present. I nothing but do “predict” *evolutions* present. The future such as it will be really remains dubious. The futurology is based much on the intuition and it is not very reliable. These forecasts are to be taken with prudence.

“They would be well wrong to be obstructed, since they can do it.”
(Anonymity)

(Reproduction: CNT Bordeaux)

Free hands of management

Founded in France in August 2005, the “contract news recruiting” allows to the owners companies of less than twenty paid to lay off **without justification** of the young people of less twenty-six years, corvéables at mercy, condemned to one period of extreme **two years** precariousness. Of course “employers' equity” requires the generalization of this measurement to all the employees.
In February 2006, the “contract first recruiting” extends the preceding provisions to the companies of more than twenty paid. The fights of the students and the employees lead two months after to the withdrawal of this law. But of other “reforms” are in preparation, which “derogate” from the fair labor standards act and the social rights.

What occurs to France is symptomatic world situation. Precariousness becomes more and more the rule. Under the increasingly strong threat of unemployment, the employees are increasingly constrained to become taillables and disposable at mercy.

It is urgent to do something against employers' feudality, to reinforce social justice!

To the XXI E century the téléprésence spreads

The telecommuting becomes operational with piloting since the Earth of the lunar probe Lunokhod, in 1970. Then it is extended timidly to the remote surgery.

Its true rise starts as from the years 2010. Helping progress of telecommunications, it allows million people of téléporter their conscience. Without leaving on their premises they

take possession of a robot. With their glasses of téléprésence provided with ear-phones and a microphone, with their detectors of movements on return of force, they see by the cameras of the distant robot, they understand by its microphones, while the machine reproduces their gestures. Without leaving at his place, each one can for example work with an assembly line, where that it is on planet, to repair any car, “to smile” to the counter of any bank, to cook any pizza pie, to supervise any nuclear thermal power station, zapper from one office to another, a conference room to the other… (Source: exposed of the robotics engineer Philippe Coiffet to the conference *“reality and its dimensions”,* organized by the French Company of physics and the national Library of France, on November 19, 2003.)

But how to know our colleagues of work? We see only puppets not always handled by the same people. How to constitute a local union? How to survive when one does not count among the least claiming? Any employee can instantaneously be replaced by another, less “expensive”. To require wages lower than the others, for a working time longer than the others, becomes a question of survival then. The records of poverty follow one another, while cruelty managériale connects and disconnects from the distant individuals to machines, according to laws' of supply and. The law the labour dissolves in the labour market.

The hardest management is not inevitably just. But clearly started with the “contract news engages”, it is that which is essential. It does not meet indeed really resistance. The majority of managed do not see which other types of social reports/ratios could be established. Is a company righter, “it dream”, is not this step? Dangerous dream, even, likely to sink in the nightmare of unemployment. Because it would be necessary to change the world rules of competition, so that the generous companies with their employees do not run. What seems impossible, unless believing in the great evening.

The general terms of life and employment become more and more traumatisantes, degrading. Pathologies related on the hyperactivity and the abuse drugs antisommeil make devastations. How much vegetables thus gesticulent in the vacuum, while trampling until the limit of their forces? Which is the evolution of the rate of psychosis, free violence, illiteracy, suicide? For much, the constraint is the only alternative to the reducing to beggary.

I do not want to leave the employers' autocracy
I want only good Masters
(Reproduction: Infokiosques)

However scientific and technical progress makes it possible to produce more with less labour. Then in which pockets absorb the profits of productivity? In those of the racketeers of course, whose trade is to make money for their own account, including at the expense of the others. They are justified by saying that they make like everyone. What means in light that everyone lets them make.

Many revolts thunder, but they remain sporadic. As a long time as of the democratic choices of company will not fédèreront them, they will constitute only one multiplication of skirmishes.

Resurgences of prehistory

Victims of an animosity to the obscure causes, androïdes are destroyed, to break the hopes of which their owners charged them. As were it 30.000 years ago of the prehistoric statuettes.

It is necessary for us to choose between a world righter and a “social” exploitation of the man by the man - between step of Masters and “good” Masters.

Let us suppose - without being able to guarantee it - that metaphysics which encourage with the *reason* make their way in the spirits. Thus let us suppose that the situation does not become, or not too, *anything.* Let us hope that the téléprésence is humanized.

Domestic téléprésence

A little later, in addition to their professional uses, the robots humanoïdes invest the private

sphere. The user carries glasses of téléprésence, as well as sensors of movement on return of force and it sees, hears, speaks, moves in friends, anywhere on planet, as if it had become their robot humanoïde. Visitors and visited can tighten the hand if they wish it. Of course the user sees in relief, in high definition, the sound is perfect and the reproduction of its gestures is faithful.

The image of the distant correspondent often appears on a screen placed on the chest of the machine. It is modified: the system reconstitutes the glance and does not show the glasses. It is possible to give to the others the indication of oneself which one wants, to have fun with the alias visual ones. But it is quickly unpleasant to lie, that made waste time with forgery. The distant correspondent can be also satisfied with a screen, to replace his glasses, which enables him to send a real image of him. But it then loses the impression of immersion in the environment where it téléporte its presence.

The androïdes exchange more and more information with the rest of the world. The walls all are more or less transparent and of new manners appear. Let us imagine for example that part of the population lets walk to it of the electronic humanoïdes in which everyone can be invited. If the robot is already inhabited, the user forms part of a queue, but it can take part all the same passively in what occurs around him. “To live with the unknown ones” becomes possible then during a few minutes or a few hours. One can “leave” on their premises when one wants… or to be made eject when they want.

Ha! Ha! I see you!
You are reading the word “raspberry”

In addition the majority of the courses, in the schools and the universities, are public. To the students physically present are added distant non-registered students. In the other direction, a doctor can use the robot of his patient for a remote examination.

The most various objectives very quickly gather all kinds of people, in more or less great number. The search engines scan the public zone of the memory of the robots, in which musics, images, various documents, are used as presentation. Innumerable mobilities and of all sizes evolve/move unceasingly, the well delimited circles are rather rare. Virtual rooms gather people in more or less great number.

Why be dissimulated? It is possible automatically to filter the undesirable ones that one identifies like such, according to parameters' personnalisables. Contrary to the real vicinity, the “virtual vicinity” makes it possible to choose its neighbors.

The androïdes also have systems of recognition of

their masters: pirates can bidouiller their mechanics or their programs only at the extremely difficult prices of research - generally the game is not worth the candle. They are of course equipped with emergency orders, of “reboot”, resumption in hand and deactivation.

In theory, all spaces of the house are prohibited with the *videophone - with - legs - which - takes down - all - only*, except those expressly notified as authorized. But much allow their correspondents to on their premises go everywhere. What avoids to them stopping their activity of the moment when a visitor arrives. The councils useful for the good moment are particularly appreciated, that they come somebody from known or not. The same applies to debates tinted in good faith. With the forums of discussions on Usenet or Internet, we currently live the prehistory of this mutual aid, of these debates, voluntary and anonymous.

The moralities prescribe to be shown such as one is, that one left his bath or that one proclaims his political opinions. The objective is to meet and attract with oneself people with whom one has real affinities. The bears, the false tokens, the prudes, all those which “hide”, miss by the occasions to be made discover by friends. In exchange of what the risk to displease is assumed generally better, tolerated, that in the past. It is not so much the user-friendliness which progresses, that the naturalness.

“Nudity is not a crime”
(Photograph: Usenet, 1999)

A number growing is thus accustomed to be invited everywhere and to live potentially in front of all the planet, which becomes a kind of vast “reality show”. The diversity of the individuals, like that of the life styles, are standardized so that nobody any more pays to it really attention. The shame of what one is, such as one is, fall in disuse.

More and more of words common to all the languages appear. An international linguistic academy into fixed the direction, but the use does not follow it inevitably.

The téléprésence creates also a world where everyone supervises everyone more or less. Many difficulties, many needs, do not remain a long time not hidden: the assistance and repression gain in speed. Consequently, the distress, as propensity with the brawl, are controlled overall better than in the past, even if all is not perfect. Manners tend to soften.

Everyone does not have however the means of buying glasses of téléprésence, and even less one robot. Many the poor do not live better than one lived in last the more or less remote ones. But, small consolation, in the event of need they profit in a specific way of progress of robotics. The services of urgencies have indeed in the public places

humanoïdes “empty” that doctors, firemen or police officers can radio-control according to events' of the moment.

In addition the humanoïdes of force, such as the following robots which carry the races when one returns from the supermarket by public transport, are free from any téléprésence. For reasons of safety, the force and the téléprésence are linked only in strictly controlled professional machines. Electromagnetic signatures are released from all these machines, which are more or less in odor of holiness for the systems which sniffent them. Those identified as dangerous set off alarms.

Last minute

A new art was born

A new generation of detectors movements has just left

A dancer places herself in the field of three laser projectors, from the adapted glasses protect her eyes. The system the scanne several million times a second. It measures the reflexion of the light on it and it transmits in real time the geometrical co-ordinates of its movements has a musical synthetizer.

The left and the right-hand side are easy to reproduce, the serious sounds appear bottom and the acute sounds the top, the volume of such or such sound frequency simulate the depth, the weak sounds evoking the distance. The mixing automatic, largely skeletal, product in real time a moving musical sculpture of an extraordinary subtlety. Even the texture of clothing of the dancer gets along!

End like a kind of Degas sound
(Reproduction: WebMuseum)

Highly that this new artistic resource makes it possible talented pioneers to make us share their emotions.

Current tendencies towards a more transparent company

A very fast evolution
(Photograph: DCU)

Currently don't we agree to see pushing like mushrooms of the cameras of monitoring in all the corners? To make us track all the times that we use one of our smart cards? To

make us card-index hundreds of times? To telephone in public? Systematically to make us record the traces of our electronic correspondences, when aren't they the correspondences themselves? To provide information on ourselves to the least occasion? If I announce to you that exist cameras whose appearance is that of a button of jacket, you will answer me that you suspected it and that that does not worry you much, is not this step?

A store, in Paris
(Photograph: DCU)

More and more of people estimate that they do not have anything to hide, that they do not want to become “paranoiac”. Some find (already) natural to live the more or less naked spirit and the blogosphère comprises a number of more or less intimate newspapers. During this time, more and more of reports, films of fiction, seek a kind “of authenticity” by posting the decorations as much that the back of the decorations of the life, of a profession for example. Massive consensuses are reinforced in the majority of the countries to accept, claim, an omnipresent monitoring, felt like more or less making safe. I also wonder if the “fashion”, if I can say, of the Islamic veil, at the beginning of the years 2000, does not proceed, paradoxically, of this same logic. Moslem women numbers some growing reveal themselves like such including in the Western countries, while wearing the veil. Moreover, since centuries, the religions claim that God sees permanently to the more close friend of each individual and nobody of offusque.

There are prospects which outline many possible aspects of the future. But they have a whole a common point: the will to show themselves such as one is and to look at the others such as they are. It will become thus increasingly easy of fliquer people. Perhaps but in compensation manners will evolve/move so that a kind of general clearness will gain ground with the detriment of hypocrisy. Perhaps that mental handling in any kind will regress.

Interrogations in connection with safety

(Reproduction: Level One Line)

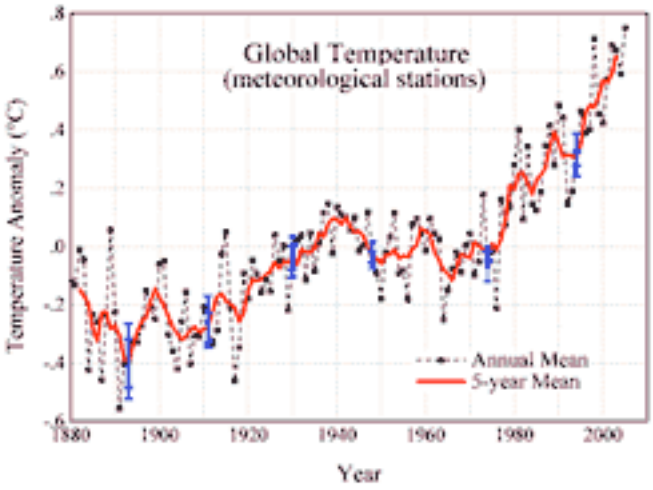
The robots of téléprésence are also, at least potentially, of formidable informers. How sure that your remote meeting was not observed, to be recorded without your knowledge? Does your vocabulary refer rather to which types of concerns? Up to what point do you speak about money, disease, sex, religion, plays, shopping, voyage? Is it thus possible to sell chlorophyl in shelves or vi4gr4 to you? Quite unquestionable Es you not to divide without the knowledge the machine of your friends with a dispensary of marketing, or the political police force? In return, their robot is likely to output a whole advertising heap of stupidities, “targeted more or less well”. Unless you can say good-bye to such or such employment, because the systems with listening classify you for example like “inconsistent”.

To rediscover the unit of the body and the spirit

At the same time source of misery and user-friendliness according to the use which in is made, the téléprésence impregnates all the sides of the company. In their near total, people would be truly deafened if they were deprived by it, even without crisis of transport. André Gide thus precedes it the anticonformist thought of the future, when he writes in *terrestrial foods,* in 1897:

“It is not enough for me to read that sands of the beaches are soft; I want that my naked feet feel it… Any knowledge that a feeling did not precede me is useless.”

Prospects ecologists



Variations in the world average temperature since 1880
(Graph: NASA/GISS)

The total climatic reheating worsens little by little with the wire of time. Drynesses, floods, heat waves intensify, to which the regional coolings caused by the weakening of the Gulf Stream are perhaps added. Heatwaves fall down on increasingly vast areas, in an increasingly durable way. The turning into a desert gains ground, it touches hard of the zones which count already among poorest of planet. In fact the rich populations essentially impose by their pollution these changes on the poor populations. This injustice creates in return democratic a general need for equality in the common natural allocation of resources, that no one morally does not have the right to monopolize. On the matter “individualism” turns more and more to the casus belli.

Space pollution

Innumerable remains coming from innumerable spaceships and satellites turn around the Earth. Their kinetic energy is often higher than that of a ball of drawn revolver with end carrying and they make play the space conquest with the Russian roulette. An international consortium undertakes an extremely expensive program of depollution, that many compares with the insufficiency of considerable social budgets. What causes sharp polemical.

(Photograph: DCU)

The life continues

The XXI E century is characterized by a deep “convivial” fold of the company on itself. Possible return of beam: perhaps the XXII E century sees humanity seeking to open with cosmos.

M51
(Photograph: European Space Agency)

To include/understand the universe, at least partly, it is not to make it banal, it is not to destroy the dream. It is on the contrary to become aware of the existence of astonishing possibilities, which exceed our most optimistic aspirations. Many enthralling adventures open with us, but many uncertainties also remain to face… Then we have all need for a company rather right and peinarde so that our thoughts, our efforts, can concentrate on our research.

There are more richnesses in a nature included/understood well, than in the exploitation of the man by the man.

Which are the human consequences of an intrinsically coherent universe?

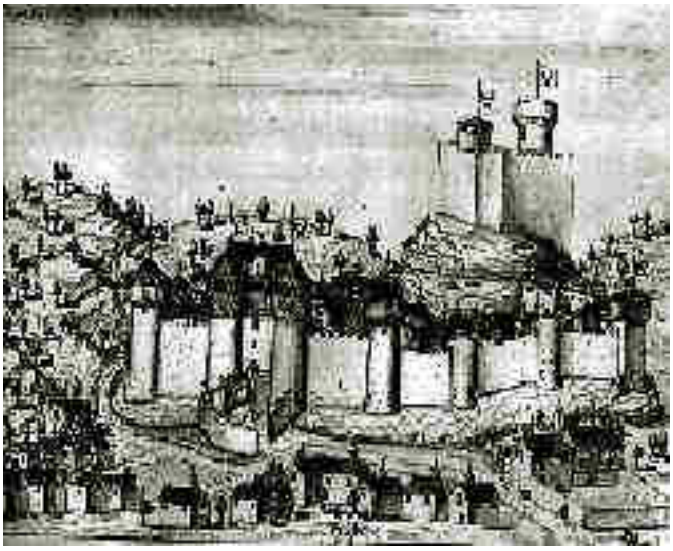
The reason does not exist only in our mental interiorities. Universal coherence exists objectively, which brings to the universe a material rationality. Many solutions exist apart from us, of which we can become aware only by seeking them.

“It is interesting to notice that the quantum revolution coincided with the intellectual revolution which has affected at the beginning of the XX E century the majority of the fields of the cultural expression: painting, music, literature. Isn't it trying to bring the cubism, the serial music or the surrealism closer to the quantum theory, intervening all like response to the crisis of the representation?”
(Jean-Pierre Stick, Gilles Cohen-Tannoudji, the *horizon of the particles,* Gallimard, 1989)

The universe has a rational structure

The only fact that it is abstractedly possible to bring back all the universe and its history to only one spatiotemporelle dimension proves that all has a common origin, that all is dependent, interdependent, coherent. Even the order, even disorder. The order is in the absolute as coherent as the disorder: they are two aspects different from the same absolute coherence. Even the things without apparent relations between them are deeply dependent.

In such a universe, where all is bound, a way exists between the situation present, with its social contradictions, and a released world of the exploitation, oppression. A socially coherent world is at least as “natural” as cruelty. Then we can and we must leave our refuges.



The castle of Crozet, in the Loire,
in France, to the XV E century
(Reproduction: Historical MINOR ROADS 1500 photographs
free of rights - SoftKey 1995)

In the absence of ramparts, not all is not lost in chaos. Because beyond protections, certainly there are plunderers, savage animals and loneliness.

An alarming spectre, in 1561
***In the* History of the septentrional countries**
of Olaus Magnus
(Reproduction: National library of France, image 131)

But we are not any more in 1561. Beyond protections, there is as and especially same coherence as in on this side, it is not completely a jump in the unknown. If a livable company is possible inside the strong castles, then it is also possible outside, provided that one works to meet the conditions of them. Many new grounds, many discoveries, many solutions, are located beyond our usual horizons, so narrow and reassuring they are.

Our social, economic niches, cultural, have at least the advantage of existing and of making us live. Their defense is necessary, as a long time as we do not find better. But it is not a reason for us for taking refuge there as at the bottom of a shell. In addition to preserving them, let us seek to adapt us elsewhere, everywhere where we can do it. This exploration enables us to discover other niches. Some constitute a progress in the satisfaction of our needs. The experiment shows indeed that one meets of all in the possible one, even of the extremely interesting things. It for example was necessary to leave the concept of candle to invent the incandescent lamp. As it is necessary for us today to leave an authoritative management of the economy to invent a democratic management.

Nature can thus be beneficial. Interior or external with the refuges, it is not inevitably cruel and cruelty is not inevitably pragmatic. Let us look there with twice before considering that all is absurd and that it is impossible for us to do anything in favour of a world righter - then every man for himself. Even the law of natural selection comprises fundamental processes of co-operation. If it were reduced to the only mechanisms of competition, then the parents would not nourish their small. Even the monkeys understand that it is necessary for them to help oneself for épouiller. With a little goodwill, us should succeed in doing a little better than our cousins simiesques.

The fact of knowing intrinsically coherent nature rather makes dream: and if a socially coherent company were possible? A coherence, a justice between the

production and the consumption of the richnesses are perhaps possible.

A socially coherent world *“it is Utopia”*, do you say? An intrinsically coherent universe would still constitute a Utopia much larger. And yet, intrinsically coherent, the universe is. Then yes, there is enough coherence in nature and the company so that the social needs and the economic resources can be really linked, without major antagonisms. We can build a civilization in which the individual interest remains coherent with the interest general. After million years of undergone survival, the life chosen democratically, invented in all the fields by all the individuals, can be brought up to date.

A good way of curing the nonsenses of the situation present is to make this situation socially coherent. It is necessary and possible, since the universe is intrinsically coherent.

Any constructive social project has to him also its coherence, which links it with the economic situation present. This is why ways exist, which carry out until such projects. There is, at least in theory, nothing utopian. But attention: these constructive ways do not exclude the existence from other ways, which them lead to regressions. All is possible indeed, provided that all is coherent: best, like the worst. All depends on our fundamental choices of company. Coherences connect to us in a world righter, as of others lead to a world more rotted. The coherence of the natural laws constitutes a screen on which we embroider collectively what we want. Best, like the worst, nothing inescapable have.

Marvellous

Why as many injustices and of inequalities exist they? Why each individual more or less have does “chance” in the life? Why some do they endure atrocious sufferings? In a universe intrinsically coherent all should be marvellous, but all is not it and far is necessary oneself some. Then how to explain the existence of an astronomical quantity of social contradictions?

Let us notice that the universe is intrinsically coherent since the first moment: it consists then of a point located “in” nothing. It is then not livable, it is even less marvellous, which does not prevent it from being coherent. Also intrinsically coherent it is, the universe is thus not necessarily and systematically “marvellous”. The marvellous one is not a true criterion of coherence. Moreover, it is true that with many regards the universe seems “hideous”, to take again a word of Baudelaire in the poem “Anthem with the beauty”. And

yet, in the absence of being current, the marvellous one is possible. A great harmony is indeed possible between general coherence, i.e. the universe, and one of its own components, i.e. ourselves. Then here the response to the interrogations emitted previously: yes the marvellous one is possible, but the universe does not give it to us “all not cooked in the nozzle”. The human side of the universe they is ourselves. If we want to make more human this “hideous” universe, it is necessary for us to implement its only man power, namely ours.

Clearness

> In an intrinsically coherent universe, let us define clearness as comprehension at least partial of coherence inherent in any objective reality.

A coherence between ourselves and the remainder of the universe exists necessarily permanently. But it is not enough to live in an objectively bent universe of solutions. It also should be interpreted the things so that the solutions appear for what they are: solutions. Clearness is for much a question of glance. It often does not perceive from the start the totality of a coherence, but a fragment. What indicates a track to him: it sees what seeking. What necessarily does not mean that it sees at the same time how to seek. It is not enough indeed to see the way, it should also be borrowed: it can appear almost impassable.

- **An example of perception of fragments of coherence:** the elementary particles have a complexity such as only unifications partial of their characteristics are currently possible.
- **An example of track (S):** the zones of shade fall under physical a generals unit of laws, which fixes limits, reference marks, with all the assumptions that one can imagine.
- **An example of almost impassable way:** even within this physical framework, the general complexity of the particles remains such as it does not exist yet of overall comprehension on their subject.

If we were perfectly lucid, we would see that we all are of the space loops moving, as all that exists. But we are not it. We have excuses. A space bond indeed connects each particle relating to each other relative particle. I.e. done everything, also local it is seemingly, has a universal complexity objectively. It is thus humanly impossible to include/ understand a fact perfectly, whatever it is, because this comprehension would amount

including/understanding all that occurs in the universe. It human east to include/ understand only partly fact, such a banal is it.

Even those which have “all the charts in hand” do not have no magic chart, they can have response to all. The human condition causes so many doubts, so much interrogations, as well difficulties, gropings, reversals without end, as the fundamental step of any individual or group should be an honest research, in theory and in practice. And it is impossible to make differently, even with the finest clearness.

> Theory and practical must be linked in a permanent feedback and be made evolve/ move mutually.

We cannot do better than to progress in the search for social solutions, with inevitable errors, reversals and approximations. The found solutions cannot become fine any more, adapted more, than in general line, not with all the blows. What inevitably implies permanent questionings, which are natural, they do not undermine the honor of anybody. The more numerous we will be to militate democratically in favour of the changes which we believe right, the more clearness of the ones will clarify the errors of the others. The more the history will be accélèrera, the more of the new solutions will be set up quickly.

Nevertheless, when we militate for a company righter, our results seem to us often quite thin. In general the others do not follow us as massively as we would wish it.

- Why people move-T don't? Is everyone thus resigned?
- And you, are you resigned?
- Not.
- What do you make moreover than the others, since you are not resigned?
- Nothing.
- You see well that, contrary to appearances, the others are not inevitably resigned.

Is our fight right? If it is it, persevere. Each one among us is indeed responsible for his individual action, even if it is not responsible for the world situation. We are however not isolated. In a basically coherent world, our action is necessarily symptomatic social processes whose width exceeds us. In practice, all the times that we give an opinion for or counters something, we take part in such or such current of thought, of action. What registers us in such or such social logic, which carries out us more or less far.

A need for justice, of freedom, sommeillent more or less at the bottom of the heart of exploited, of oppressed. It pushes to fall under logics of revolt. All that is made the positive one socially is thus the work of the dominated classes, which thus have an immense capacity of combat. It is obviously not the work of the slave traders in any kind. To include/ understand this immense capacity of combat, it is to locate it from the historical point of

view in the long run, rich in flow and backward flow. It is not him to require all to regulate day at the following day.

In all that, for which kind of company militates what we do?

If each one among us on average knew, knows or will know a whole of thousand people, and that each one of these people knew, knows or will know thousand other people, then direct knowledge and knowledge of knowledge constitutes a whole of a million people. This convivial empire reveals that each individual really acts on the general situation, perhaps more than it generally believes it.

Moreover we do not express ourselves only by the word, but in many ways through our attitudes, our choices, our reactions. The communication is permanent, even between individuals who do not know each other. The reverse is true also: what does the others conditions directly or indirectly our individual lives. The collective history results thus from all its individual components, which “draw it” with more or less different forces, in more or less antagonistic directions. The world situation is thus not a mechanics of which the parts can be isolated from/to each other because we divide all, directly or indirectly, the same collective history. It has an organic unicity. Local in its form, the history is world in its contents.

The individuals who make the world situation are thus in direct or indirect interactions the ones with the others. What occurs here flashes back more or less everywhere and is at the same time more or less symptomatic what everywhere else does without. What does not mean that all evolves/moves uniformly. Multiples and more or less subtle communicating vases connect all to all, but the local evolutions do not take inevitably everywhere the same form. What means that the solutions of the ones are not inevitably adapted to the problems of the others. A certain local autonomy, flexible and democratic social structures, are essential to the good walk of the company.

In this unit, do we act for a world righter, or more predator? Where is our interest? Each one among us can become more triumphing over tyrannosaures, it will never live as well as in a world socially right. Because in a universe which is characterized mainly by its absolute unicity, we undergo ourself, directly or indirectly, consequences of our own benefits, like those of our own misdeeds. Swindle that we inflict with others make us militate, that we of it are conscious or not, for a barbarian world, where it makes much worse food than in a world righter. “We collect what we sow”.

Of course it is impossible to satisfy everyone.

But it is possible all to implement to satisfy everyone. A policy right has an obligation of means, which militate for a world righter, not an obligation of results. It manages “only” the democratic equal rights in all the fields. In particular, no one cannot exert its democratic rights if it is hungry, if it survives the street or if it is ignorant. Then the community must jointly guarantee the right of each one with food, housing, the instruction, the satisfaction of the social needs, in the measurement of the know-how of medicine, health, sciences and technology. For the remainder, it is with each one to deal *democratically* with its business.

In a socially coherent company, the abuses perpetrated against social solidarity will undoubtedly remain limited. There does not exist indeed of “human nature” more or less perverse, which remains like a constant suspended in the vacuum. All that exists, they is behaviors with their own logic, plunged in more or less civilized social logics. For example, in an environment dominated by the law of the strongest, much let themselves derive towards cynicism and spite… That the social rules change and logics of the “human natures” change in the same way. In an environment dominated by the equality, much, in greater number than today, will take care “spontaneously” of the respect of the same rights for all.

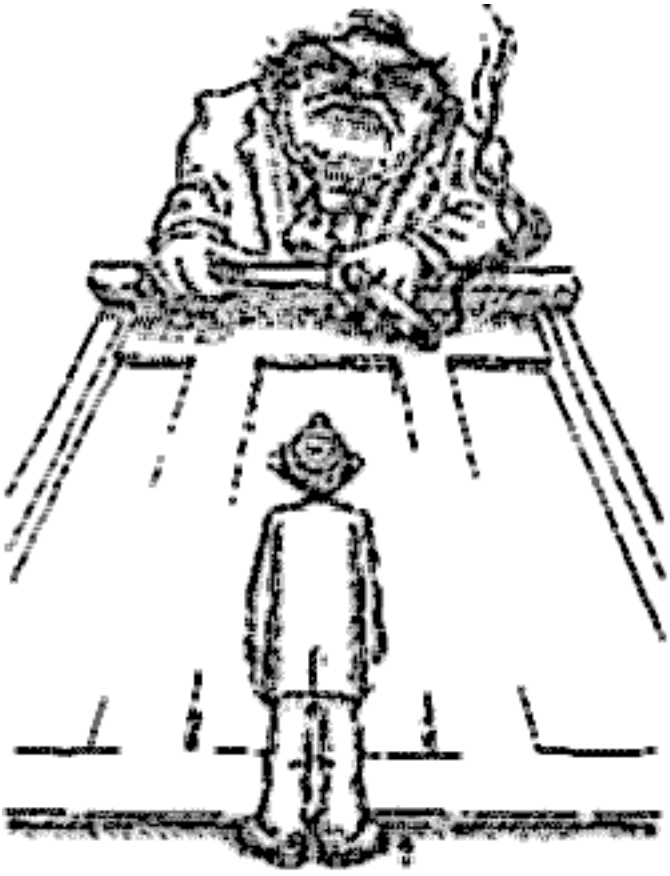
The claims are not limited to the satisfaction of the only needs for the body. To be nourished, placed, to be slept, heated, lit, bleached, transported, it is very well, we are not to it all and far is necessary oneself some. We have all need for that to survive, but animal survival is not enough with the human ones. The material needs meet indeed only partly the moral needs, which them require in more the respect for human dignity, the professional initiative, the creativity, the democracy, social justice…

“True physics is that which will arrive, some day, to integrate the total man in a coherent representation of the world.”
(Pierre Teilhard of Chardin, the *human phenomenon,* quoted by Jacques Demaret, *Universe, the* Email, 1991)

Democratization of creations of companies

Each one should be able to propose the creation of a new company to a mutual insurance company of companies, which would provide him the means and the follow-up necessary.

If this proposal is accepted, after a study of the file, the contractor would create his box with funds and councils of the mutual insurance company, which would then gradually recover its setting by employer's shares. The mutual insurance company would have also a right of control on the accounts of the company. It would be used moreover as net of safety in the event of bankruptcy.



Freedom Equality Fraternity
??????????????????
(Illustration: Usenet)

If the contractor recruits associates and/or employees, it organizes then the democratic election of the owner. Each voice counts only for one, that it is about that of a member of that or board of directors of the company of a basic employee. A former owner replaced by another becomes member of right of the board of directors until the next election, which leaves him time to prepare its re-election like owner, or simple member of the board of

directors - or to prepare its reconversion. If the box is too small to have a board of directors, the former owner cannot in any case be laid off until the next election. The mutual insurance company can to also find him a place with the board of directors of another company.

When the company grows bigger and that new hierarchical levels are created between the basic owner and employees, it is the democracy which decides if whole or part of these intermediaries is eligible or not. The election or not of whole or part of the intermediate chiefs belongs to the electoral program of the candidates to the direction, whose election is the only one which is obligatory.

The democracy could thus be established including in the small boxes lately created, because it does not dépossèderait the creators of a company of a personal financial investment, which would not be necessary any more.

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The companies, the services and the public administrations do not belong to private owners, who would be likely to lose their personal financial investment if they were not elected. The democracy could be established there without the precondition of a mutualisation. This installation is only one question of political good-will.

The private owners, the small-time speculators, bring their capital to the company. The employees bring as for them them labour force. No reason justifies the crushing of the one of these two contributions by the other. They are in fact on an equal footing, even if they are currently not to it right. The voice of an investor should count only for one, as well as that of an employee, including in the companies. The dictatorship of employers is not more legitimate than that of the proletariat.

The voice of that or that which brings capital should count only for one, like that of that or that which brings its labour force. Without what, there is no democracy.

Moreover, nothing prevents the members of mutualized and/or public companies, to vote for programmes of pooling of a certain number of their resources, as research. There can be there the beginning of a deterioration of competition, with the profit of a democratic planning of the economy. Such a democratic revolution could inflect without violence the evolution of the company towards more solidarity, less predation.

Such provisions are least things. A long time ago that they should be founded. Civilization progresses indeed only insofar as social solidarity progresses it too. To let the individuals only manage, compete with themselves, it is inevitably to lead the ones to crush the others, to survive; it is organized cruelty, it is not social progress.
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In this logic of social solidarity, the mutualized companies could be integrated into the State, like expressions of the interest general. To choose between equivalent products, can the consumers prefer “the democratically” manufactured label.

If one seeks with responsabiliser the individuals in the creation of the richness, the first of the things to be made, it is… of the responsabiliser. It is to offer to them the maximum of democratic possibilities of choice in all the fields. It is also to take into account their social requests, in the respect of the rules, the common laws. What does not mean only it is necessary to vote every five minutes, but according to methods to be fixed democratically. We know to manage the democracy outside the companies. We will learn how well to manage it inside.

Various forms of democracy exist

A majority does not crush a minority inevitably. Majority and minority (S) can federate so that it or the minority (S) can do what she wants, with the proviso of not putting sticks in the wheels of the majority.

Democracy including in the companies, the services and the administrations!

To be able to betray his/her friends

“Many authors thus denounced the use of the play known as of the kitten. One joins together for one week of the commercial executives in a castle. Each one receives on its arrival a kitten of which it will have to occupy itself, to allot a name to him, to give him to eat, to sleep with him, etc This training course to learn how to make decisions is held completely normally. But at the end of the training course, one asks the executives to slice the neck of the kitten to render comprehensible that one does not make a decision without slicing in reality, which often made very badly, is hard to support (dismissals, etc). The executives lend themselves to this play not by sadism, but by conformism. How, the following day can they, however, be looked in the ice? Their only solution is to accept the values of smuggling which management proposes: the idea that all would be possible, that all would be indifferent. It should be specified that this play of the kitten was a rite of initiation at the SS.”
(Paul Ariès, *Harassing with work or new management?* Golias editions, 2002)

When an owner does not make the deal, it should be possible to elect another of them. **What should constitute a possible solution of replacement, but not obligatory, with the strike.**

With each one to learn how to use its ballot paper lucidly, to include/understand what is the interest general, to reject the clientelism. If exploited, oppressed, vote against their interests because of their illusions, it is a pity for them.

Let us understand by owners, chiefs, or leaders, the charged ones with the organization of work, the production planning and distribution of income. The chief it is that which manages the time and/or the wages of his subordinates. He is not inevitably owner of the means of production.

"The prole knows how the work is done, the owner knows why one does the work." (Coluche, *Thoughts and anecdotes,* seek it midday, 1995)

The chief, it is also that which inevitably has a surface sight on a job that it does not make, since it is that of its subordinates. He is supposed to compensate for this gap by a general comprehension of the constraints concerned broader than that of the experts on whom he has authority. But this compensation does not replace capacities of expertise it does not have. Then the only way of knowing if, in spite of its superficiality, it helps really its subordinates in the exercise of their work, it is periodically to subject its action by the vote of those which it manages, in competition with the projects of possible challengers.

It is often a question of the civils servant who worry few decisions of which they undergo the consequences little. But the not elected owners do not risk large-thing either: if the majority make too bureaucratic decisions, it is not them which are found with unemployment, but their subordinates. Then, yes: abolition of the privileges. But of *all the* privileges, including those of the owners.

The best and more is deserving it really, or are it they only because they autoproclament like such? The only way of knowing it, it is to subject their action to the verdict of these same which undergo it.

The leaders are elected to implement adaptations to the evolutions of the social and economic environment of the company. If they betray their mandate, they must be revoked democratically. What requires a total transparency of the accounts, a possible control constantly. The democratic election of the persons in charge could thus take place with full knowledge of the facts. Elected, controllable and revocable, the hierarchies should thus prove reliable with the eyes of all, not only in comparison with the superiors. They would be shown perhaps a little more respectful of their "protected", a little less manipulators and

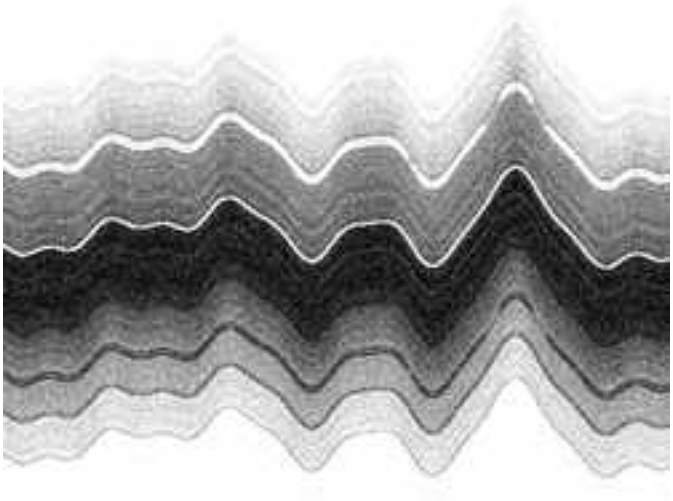
bureaucratic. On the other hand, strong from their new legitimacy, they would profit from an authority accepted better by all.

If your owner is effective, with the listening of his subordinates and that a majority does not have problems with him, that does not certainly escape your colleagues. Even after elections in your company, you will keep it, your friend! But thinks of those which have some, of the problems. For example, with those which them owner seeks to handle mentally - the border between management, mental handling, bad faith and harassing is not always very clear. It is in priority for them that the democracy in the companies must be established.

Nothing dictatorial here. The dictatorship is rather side of the illegitimate capacity of the not elected hierarchies, which are not representative of the interest general.

Of course, it happens that the democracy does nothing but limit the corruption, it does not prevent it inevitably. To found in the companies all will not règlera. One can reproach him all that one wants. It does not constitute of it less one need. When we profit from the democracy outside the companies, we are rather glad to have it. If we also profit from it inside the companies, we would be in the same way rather glad to have it.

Felted or not, the human wasting is terrible in the companies, where the autocracy is the standard. Armies of workers undergo all their life the choices of a minority of owners, instead of deciding themselves democratically bottom and form of their contribution to the company. In million, million and million case, precariousness and misery are too large so that the individuals have of time and the means of doing of their own life what they have desire for making some. So that each one can open out it in what it is impassioned the most, most gifted. All that is offered to them, it is to become the flexible instruments of having.



Gray lines
(Illustration: DCU)

Jokes managériales

These fictionalized elements are not only novel.

- We are not same world.
- The capitalist companies are not philanthropic works. Their goal is to make work employees who report more than they cost.
- Objective: 10 % of dismissals per annum for fault, bad behavior or insufficient results. This way, we will keep only the best and they will be held quiet.
- We definitively will make you work more and pay you less. But will be for you only one a little painful moment to pass. Then you will adapt.
-
  - When you leave yourself a difficult professional situation, it is the proof that the difficulty is not quite large.
  - When you do not leave yourself there, it is the proof that you are unable to manage the risks of your trade.
  - You are thus poor, right to good do work creatures of habit.
- I succeeded in making turn the shop with subordinates considered as dead loss. It is the proof that I am a large manipulator.
- It is not because I reproach you something that that prohibits to me to make worse.
- A trade union? Not that at home!
- It would be necessary that I blame my bosses to come to assistance of the victims of injustices in my company. But I do not want to be transfered then I prefer to keep silent myself.
- The astrological sign of this person is incompatible with the birth chart of the company.

- There is the right well to have small secret gardens, even in his professional environment, and to say all only one makes.

- “Learn how to become proactif.” What in light means: “with your dismissal and clear up you do not annoy me to find job”.

- And will cætera.

Like that and of worst, the every day ago of them. The not elected hierarchies are put at the service particular interests of those which promise the promotion of their careers to them, they do not put at the service interest general. Such a logic does not exclude the individuals whose very false management, very egoistic, is proven. As it does not abolish the plutocracy of the shareholders.

The democracy, it is neither a brains trust whose entry “is opened with everyone”, nor the purchase of actions. It is a respect of the general will which makes it possible to apply in the companies the majority design of the collective life.

Moreover, to have democratically a say in the policy of the company, to feel a citizen recognized as such, even on its place of work, is more justifying that to feel managed like a tamed moron. Made democratic, work would give to each one more desire for being invested in selected responsibilities, less undergone than in the past.

Why competition be would more effective than solidarity?

The owners manage the production of their companies: economy and planning are thus not incompatible on a manufacturing unit scale. Then why what is true in the companies it would not be also outside? Why a multinational should be directed, its production planned, whereas a whole of SME should not be it, in the name of competition? Why put questions in connection with the particular production of each company, but not in connection with the production of the whole of the companies? Why, ultimately, believe that the economic laws which apply to the particular production of each company are basically different from those which govern the general production?

To finish the French revolution of 1789!

Alas, the French revolution of 1789, like its later international widening, stopped with the door of the companies and the administrations, where still reign of powerful feudalities. The interest general however requires to finish 1789.

Article first of the Declaration of the human rights and the citizen, France, 1789
The men are born **and remain** free and equal in rights. The social distinctions can be founded only on the common utility.

Article first of the universal Declaration of the human rights, 1948
All the human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and must act the ones towards the others in a spirit of fraternity.

"And remain" of 1789 disappeared in 1948. The world is thus less free, less levelling today, than was to it France in 1789. The autocratic "management" of the owners is a survival of a feudal past.

A new revolution will it thus register **"and remain"** in the universal Declaration of the human rights of 1948?

It is not for as much not necessary to bring out the guillotines. The death penalty does not bring indeed what its partisans expect. It does not encourage with the respect of the life, of the democracy. On the contrary, it contributes to create an irrational climate, in which some are estimated enough infallible to make the irrevocable one.

Our principal means is imperceptible. Million and million people who share common values constitute a all the more powerful force as they militate for convergent ideas, each one with its way. The democracy in the companies, the services and the administrations will be established *inevitably* when million people approves the idea of it and want of it. As the vote for all extended to the women.

Freedom, equality, fraternity,
including in the companies,
services and administrations!

I call all the individuals and all the organizations which militate for a democratic world, to take again on their account the claim of democracy including in the companies, the services and the administrations.

Whatever the forms and the deadlines, the aspirations with more social justice evolve/move, like all the company.

These evolutions depend for much metaphysics moment. In other ways of surviving are possible? Are there in nature enough resources so that we can invent righter social reports/ratios? Or are we all prisoners of destinies of which we cannot escape?

“Not, the poor are not goods with nothing, incompetents to go back in saddle and to be useful to their similar. We have the proof in our Emmaüs communities of it.”
(Martin Hirsch in the *Utopias of today, the* New Observer out of the ordinary n ° 59, July/August 2005)

DIVIDE
ILLEGAL!

You divide a pirate version of a paying creation

Your address IP is recorded. Continuations will be committed against you.
Will know that the law of a number growing of countries represses much hard the hacking of numerical products than the setting in danger of the life of others on the road.
Logics of division lead indeed to Communism.

Click here for more information

However to copy a numerical creation is not to withdraw it from its owner, who out of preserve fully the use. It is not it “to fly” and justify a repression graduated until ferocity that within the framework of a capitalism which becomes increasingly obsolete.
In fact so much the royalties are defended, that a very popular numerical Communism which is attacked.

We have the possibility of multiplying ad infinitum, almost free, foods of the spirit. That no heart is hungry. We organize so that everyone can benefit fully from these marvellous possibilities offered by the laws of physics.

The reading of this site is limited to 21 days. Beyond this probation period you are liable to 300.000 euros fine and/or 3 years to prison. The first judgments already fell. Fortunately you profit from the leniency of a minister

who promised that for a first judgment, the prison would be inflicted to you only with deferment.

Why not officialize a few hundreds or a few thousands of data-processing programmers and make of Linux particularly convivial, compatible with all the materials, as well as derived applications, a free public utility? It would be an excellent investment. The benefit that would withdraw from it to it quasi totality of the private individuals and the companies would be immense, in exchange of a negligible contribution of the taxpayers and companies. Until now, unfortunately, with the fight against the data-processing hacking, the States “forget” the defense of the interest general of the populations.

The creators of software, like those of musical works, like the scenario writers, the photographers, the writers, the journalists, lists nonclosed, should be able to become civils servant if they wish it, with all the guarantees of independence necessary. They would receive a remuneration proportional to the number of remote loadings of their works, including by the networks peer-to-peer. A precise accounting of the remote loadings is technically realizable right now since it is possible to know which downloads what with enough certainty to send somebody in prison for three or five years.

Various countries, in particular in Western Europe, opened this prospect for indirect remuneration of the authors as of the end of last century. For example France founded a tax on the virgin cassettes in 1985. Million and million consumers pay a royalty on the recordable numerical supports, which compensates the artists and their managers for the private copy, even when the supports in question are used to record neither of the music, nor of films. To be legitimate, this provision should be accompanied by a prohibition of the devices anti-copy. A royalty included in subscription Internet could in the same way compensate the victims authors for the peer-to-peer. To be legitimate, this provision should be accompanied by a legalization of the free exchanges of works. In current logic indeed, much pay a royalty for the copy of products which they cannot copy.

A total remuneration of the authors by financial redistributions of the State is thus not utopian, the authorities can make and they make partly. It is only one question of political good-will and economic rebalancings. Whatever his incomes, any user of a computer connected to Internet should have the largest media library of all times, in which it would be possible for him to find all or almost. The shared culture does not divide, it multiplies.

This public character would move away moreover the spectrum from the numerical formats owners, readable only on the readers of the owners concerned. What would save to the consumers the commercial racket of the culture. Let us imagine for example that million Web sites is accessible only with one protocol owner. They could then be visited only using the navigator of such mark, which would cost for example the one month price of average wages… To apply to the saving in numerical products (saving in abundance, the same object can multiply by the number of users) the rules of the traditional economy, (of scarcity, the same object can only divide by the number of users) led to ineptitudes. In particular, that creates artificial scarcity, of “padlocked abundance”. The culture does not

turn to full mode, whereas the world in lack.

Everyone should be able to become civil servant. It would be a form of “deterioration” Marxist of the State. If everyone becomes civil servant indeed, the State does not live obviously any more with the detriment of the not-civils servant.

Mutualized companies would ensure the financial resources of the State. Their production would be planned democratically.

Towards a generalized democracy

The difficulties social, economic, put in danger the survival of the individuals. The more serious they are and the heavier the constraints which they impose are. They go thus from the embarrassment to tyranny. Only an interdependent economy guarantees to each one material reality of its freedom. Without what each one is brought to sell its freedom on the labour market, in the hope not to find itself with the street. The individuals thus reduced to the state of goods are not free.

Let us seek to set up an economy in which what is good for the companies that is to say good also for the employees and the consumers. It would democratically control the adequacy between the economic production and the satisfaction of the social needs.

In India, July 2005
(Photograph: Action Mondiale counters Poverty)

Housing, food, transport, the instruction, information, the culture, social protection as regards health, of retirements… should constitute rights of which everyone should profit. The corresponding duties are to be distributed according to capacities' of each one.

Nothing authoritative in all that: there is no question of imposing any forms “happiness” since the top of the company towards the base. On the contrary, the social reports/

ratios must be worked out democratically since the base towards the top.

The salary range in particular, should be determined democratically. He is not a right only one nurse, who takes care on the life of tens of patients, touches hundreds of times less than one pédégé, which is satisfied to defend its personal interests. The debates on the matter must lead to the practical application of a more levelling scale of values. The companies would be they more badly directed if the “small gifts”, the “stock-options”, the “attendance fees” and the “parachutes gilded” were removed? In other words, if employers' feudality were abolished?

Ultimately, which each one made of its life must be a *democratic* choice. The possibility of being discovered a vocation opens the door with the most impassioned personal investments, with the need to make some as much as possible, as research of the particular form of happiness which is appropriate for each one. But if it is necessary to become the unconditional servant of an owner to survive, it does not remain much any more of place for the vocation.

> “One can live in the world a splendid life when one can work and like, to work for what one likes and to like it with what one works.”
> (Leon Tolstoï)

Utopia? Perhaps. Ideal towards which to converge democratically? Certainly. We undergo the present, but we choose the future at least partly.

In the recent history


RÉPUBLIQUE FRANÇAISE
LIBERTÉ, ÉGALITÉ, FRATERNITÉ

ÉLECTIONS
A LA COMMUNE

SCRUTIN DU 10 AVRIL 1871

COURBET

ROGEARD

The Commune of Paris, in 1871.

The democracy remains active, in spite of appalling conditions. Specimen.

(Reproduction: CD 1500 photographs histories free of rights, SoftKey 1995)

The Commune of Paris in 1871, the insurrection of Kronstadt in 1921, the war of the Spanish republicans in 1936, arrive, in spite of repression, to found a company which meets the moral needs, as with the economic needs. In these social organizations, the capacities reflect the general will democratically, including in the factories and the administrations.

The reproductions below come from the site
Puncture-proof anarchists

Sailors of Kronstadt, in 1921

- “The change present gives to the workers the possibility of having finally its freely elected Soviets, functioning without any violent pressure of the party, of reorganizing the trade unions of State in free associations of workmen, peasants and professional workers. The police stick of the communist autocracy is finally broken.”

- “We launched a call to all the workers of Russia so that they fight for freely elected Soviets.”

- “Live the freely elected Soviets!”

(Izvestia of the Provisional Revolutionary Committee of the Sailors, red and

Working Soldiers of the town of Kronstadt, 1921, Ressouvenances Editions, 1988, for the French translation)

Spain in 1936, in the camp of the republicans

Socialized dairy factory

Since the collectivized cribs until levelling education

Out of these socially futuristic episodes, since the beginnings of the industrial revolution, nobody asserts the democracy including in the companies and the administrations. Only, some individuals and groups, more or less anarchistic, are the exception which confirms the rule. However “which does not say word agrees”. Then do the democrats accept in fact, standardize, employers' feudality? Is this unconsciousness? Unless the workers are regarded as too animals so that the democracy in the companies is entered on the agenda. In this case, on what based

is such a judgement?

For soon two centuries, the owners have not met really opposition on the bottom of their logic, only on the form. What gives the very clear impression to the greatest number, consolidated by the bureaucracies pseudo-Communists, that the social revolution always leads (in theory and in practice) to a simple change of autocracy, owners, not on a freer and democratic company.

Would employers' authoritarianism be thus essential, even with the revolution? The slaves can indeed have of another recourse only the trick and violence - authoritarianism - to release itself. But it is not necessary that this trick and this violence are institutionalized in a dictatorship. What must be institutionalized, it is a democracy. In which including the owners have the voting rights, but the voice of an owner, like that of a worker, does not count whereas for one. Thank you not to confuse the means (the possible trick and violence) and the end (the democracy).

If it is not only of frontage, this choice of a democratic company results in such democratic objectives and claims them. In particular, the wage claims should not make forget and return to the Greek calends the claim of democracy including in the companies.

> “Context” or not, it is necessary to know what we want and to militate for.

But about which context is it? What the populations included/understood in 1789, in France, they includes/understands it rather better nowadays, everywhere in the world. Then why militate for another thing? Why launch out in various and varied, supposed operations being “included/understood” or “felt” by the masses, and which occult the true objective?

> “Y would like that one is intelligent and y take to us for idiots… Ben, how one would make, then?”
> (Coluche, *Thoughts and anecdotes,* seek it midday, 1995)

Fortunately fire broods under ash. In the weekly magazine Politis number 888 of February 9, 2006, Johanna Lévy notes that in 1994, in Brazil, “the national Association of the workers of self-managed companies is created (Anteag). It gathers 52 recovered companies today, that is to say more than 15 000 workers, in sectors as varied as the extraction of ores, the textile or the services. [...] Aujourd'hui Argentina is, in Latin America, the country which counts the greatest number of companies recovered - nearly 200, gathering some 10 000 workers, of expropriations for nearly a third. The phenomenon, amplified by the financial crashes of 2000-2001, touches from now on Uruguay (27 companies), Peru, Paraguay and Venezuela (ten companies) and maintaining Mexico or El Salvador.”

> “I have worked here for eighteen years, testifies Wilmer Roja. [...] Today, we work with much more pleasure and of implication. We gain all the same wages of 500 000 Bolivars per month, and the coordinators do not have any privilege.”

The world evolves permanently

Each day in the world marks an evolution compared to the day before. Under these conditions changeantes the situation can improve, as it can degenerate.

- Or we estimate that in a nature absurdity, only can exist a company absurdity - a world righter, in this case, it is Utopia. It is then with each one to make its hole without putting questions, including with the detriment of the others. There is not any more but to continue to increase already monstrous military budgets.

- Or we consider that there is enough coherence in nature, so that it is possible to arrive rationally, collectively, in a world righter. In this case let us militate for such a company, each one with its way.

CONCLUSION

Return

Each one militates more or less actively for such or such type of company. It “draws” with more or less from force the situation towards the evolution to which it contributes. It constitutes a social component thus, like the east a vector-force in physics. Such contributions, more or less convergent, more or less antagonistic, of all the individuals, agitate the company in all the directions. It results an item 0 from it from balance, which corresponds to pragmatism at a given time. A general coherence emerges from all these movements.

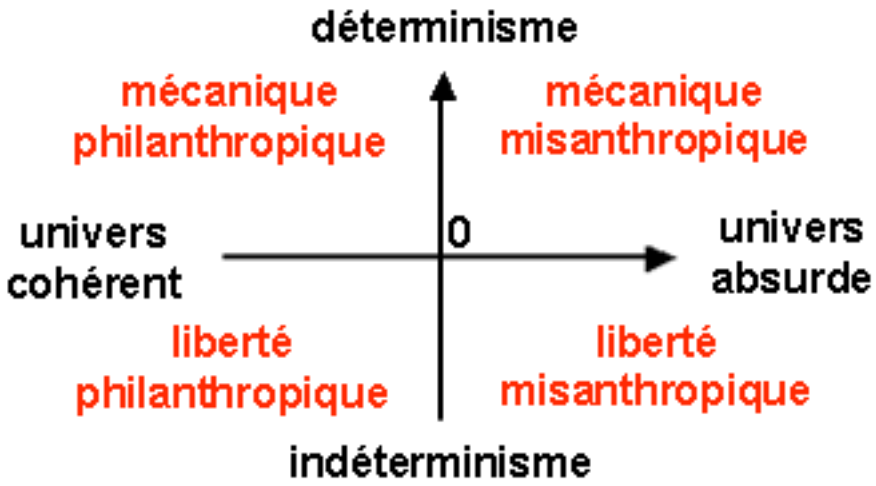
“Each one carries in oneself its design of the world of which it cannot be demolished so easily.”
(Henri Poincaré, *science and the assumption,* Flammarion, 1914)

To each universe particular prospects for social evolution are attached

To estimate that certain things exist, are possible, and others not, implies a certain design of nature and its laws. These estimates suppose at least a type of universe and they exclude from other types of universe.

Our choices are based thus on our representations more or less conscious of nature, of the universe. Like Mr the Jordan, who made prose without the knowledge, we do all of metaphysics without always the knowledge. If we do not control our metaphysics consciously, it is it which subjects to us without our knowledge with its presupposed, with its “obviousnesses”.

That is to say a Cartesian diagram, which goes of a nature considered as indeterminist to determinist in ordinate and from coherent to absurdity in X-coordinate:



Many dialogues are difficult because they are based on designs different from nature. The metaphysics helps to know where the divergences are in-depth. It facilitates the democratic decisions thus.
(Graph: DCU)

In a **deterministic universe**, the range of the possible states brings great constraints to the possible evolutions of the company.

In a **universe indeterminist**, it is the opposite. The range of the possible states brings a great freedom to the possible evolutions of the company.

In an **absurd universe**, the natural processes are irrational. They make it possible to do all and anything, without one really taking on them. They lead rather to social deliquescence. The general evolution of the relationship between the individuals tends to being negative.

In a **coherent universe**, it is the opposite. The natural processes are rational. They make it possible to launch comprehensible, controllable projects. They lead rather to the social harmony. The general evolution of the relationship between the individuals tends to being positive.

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- What is located in the quadrant **determinism/absurd universe** sees well few alternatives to the consequences of the evolution tendentially negative of the relationship between the individuals. Expulsion, enfermement and it death penalty are about only effective measurements of social maintenance of law and order.

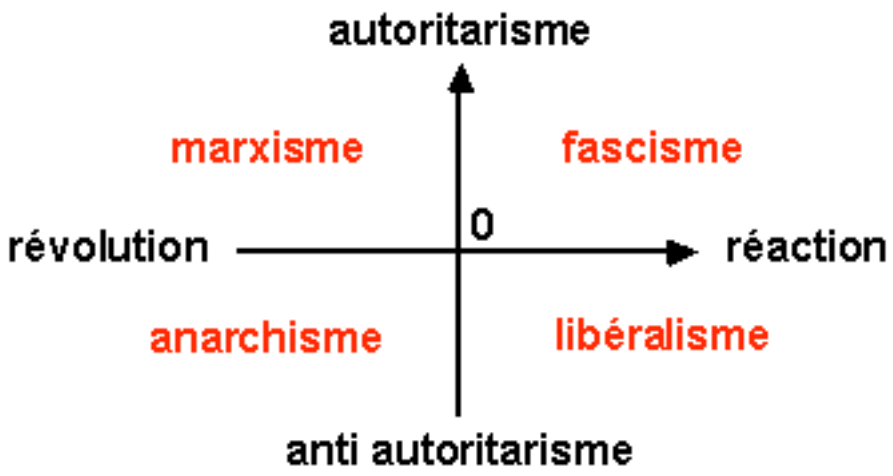
- The quadrant **absurd universe/indeterminism** for its part sees an unlimited field of alternatives to the consequences of the evolution tendentially negative of the relationship between the individuals. That those which find the solutions most effective enrich more.

- The quadrant **indeterminism/coherent universe** sees him also an unlimited field of alternatives, but here it is with the consequences of the evolution tendentially positive of the relationship between the individuals. Multiple economic and social solutions will always exist, they will make it possible a harmonious company to adapt indefinitely to all the situations.

- The quadrant **coherent universe/determinism** sees few alternatives to the consequences of the evolution tendentially positive of the relationship between the individuals. In particular, contradictions are dialectically coherent, it results from it from economic and social imbalances which mechanically put the masses moving. That the most effective revolutionists seize the power.

By their daily action, the individuals permanently transform the balance of these four quadrants. But the relative differences between metaphysics reconstitute same fundamental divisions unceasingly.

An illustration of social coherence



The sociological equivalent of the metaphysical diagram located higher, on which it is superimposed.
(Graph: DCU)

- What is located in the quadrant **authoritarianism/reaction** corresponds to Fascism. For example repression striking the opponents with a mode reactionary.

- The quadrant **reaction/anti authoritarianism** corresponds to liberalism. For example freedom to become a predator for its employees and its competitors.

- The quadrant **anti authoritarianism/revolution** corresponds to anarchism. For example the refusal to vote with the general elections, like opposition of principle so that a majority, even democratic, crushes the freedom of the minorities.

- And the quadrant **revolution/authoritarianism** corresponds to the Marxism. For example the representatives of the revolutionary party direct the company, but as “legitimate products” of the revolution, they are not elected by the population.

There still, it of solidified there nothing between these four quadrants: fluctuations, drifts, make them evolve/move permanently. Constantly a general resultant (item 0) corresponds to the total report/ratio of forces.

With him only a diagram is a stereotype of the reports/ratios of forces at a given time. A succession of these stereotypes registers the displacement of pragmatism on a “méta diagram”. The discussion is open to know if the human history evolves/moves tendentially rather worms of substitutes of Fascism, liberalism, of anarchism, or of the Marxism… Perhaps in any case, in the decades and the centuries to come, these labels will remain. But they will not be attached completely to the same theories, with the same practices as today. Like Fascism, liberalism, anarchism, the Marxism, are not exactly today what they were fifty years ago. For example the industry of armament played a more important part in capitalism “keynésien” of “the thirty glorious ones” than now. We could also observe the various abandonments of the principle of “many other evolution and dictatorship of the proletariat” still.

HOW TO MAKE? page 1

BASIC CONCEPTS

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To wonder about nature, the universe, to seek explanations to all are perfectly legitimate. It is not reserved for an elite, but it is essential to comply with rules. Here some councils practise to adapt according to its personal experiment and its objectives, to develop oneself its own metaphysics.

"It is useless to work with more entities when it is possible to work with less.
Or, one should not multiply the gasolines except need."
(Guillaume d' Occam, 1285-1349)

Reception of the information emitted by the others

It is not inevitably there a exercise as easy as it appears. Up to what point to accept as true the information which we do receive? Up to what point to reject them like false? Those which take their distances with the surrounding culture are right to criticize what seems to them criticizable. But before dedicating something with the gémonies, thus starts, as much as possible, by good to include/understand it. For example, avoids balancing wrongly and through in the "Einstein was mistaken". There is a great risk so that it is not Einstein who is mistaken, but you. If you detect a true fault, thus make true physics. I.e. measurable predictions, which can prove what you advance and to lead to a more precise theory, more general.

Science progresses indeed by successive approximations. The theory of the épicycles it

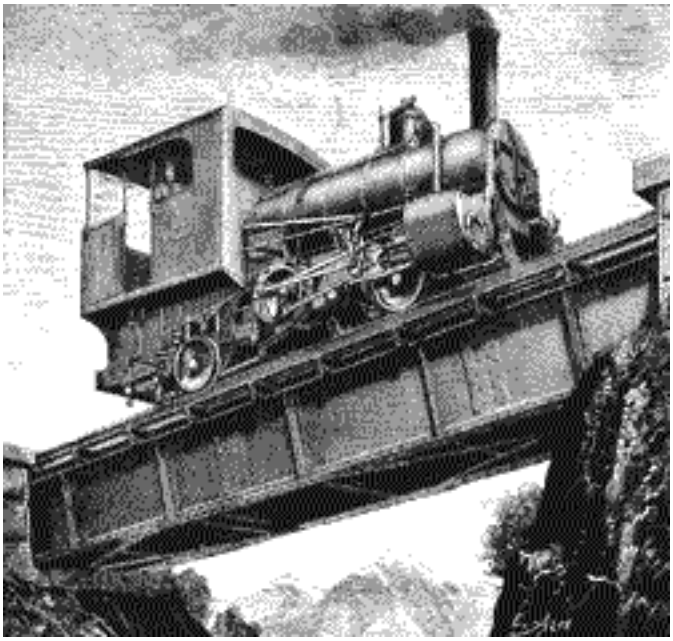
goes - in an approximate way - but it goes nevertheless. The scientific “revolutions” do nothing but extend the field of validity of the already existing theories, they do not reject them. After having proven reliable, the physical theories into force in the future will be more general and more precise versions of quantum mechanics, cosmology current. In the same way, relativity is more precise than the Newtonian mechanics which precedes it. Even if, in practice, at the low speeds, Newtonian mechanics is as precise as relativity. If you make “revolutionary” physics thus the baby with the water of the bath does not throw. Integrate the theories last and present as approximations more or less partial of your own theory - what supposes that you know them.

But if you make metaphysics, it is not your job. All that your rational readers ask you, it is to work out an interpretation of the nature who respects at least the basic ideas of physics, science which is your schedule of conditions. What you explain must correspond to facts, phenomena, experiments realities - with real physics. You can be a as revolutionist as you desire in metaphysics has some, but in physique it is necessary you to remain of a quasi tedious conservatism. It is also a question of honesty. Everyone has the right to be mistaken, but not to output balivernes knowingly. If you want to be delirious, is delirious, but it will not be metaphysics. Do not confuse physical, metaphysical and are delirious. Nature remains coherent, rational, in all circumstances, whatever the illusions which we can nourish in his connection.

- Physics seeks the form (it “how”) of the relations between the things.
- While metaphysics seeks the nature (it “why”) of the relations between the things. For example the question of knowing why the behavior of the particles is quantum is not physical, it is metaphysical. Here even, the answer is: because the space time is basically unidimensional.

Physics and metaphysics do not drive out on the same grounds, which does not prevent them from being reinforced mutually.

- In physics, mathematics is of an effectiveness such as they suggest an objective world with the rational laws.
- In metaphysics, the concept of coherence is of an effectiveness such as it suggests it also an objective world with the rational laws.



- ***Physics proved reliable for a long time.***
- ***Metaphysics must still do to them his.***
  (Scientific American number 481 of March 21, 1885)
  (Reproduction: Project Gutenberg)

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The more difficult the subject is, the more it is essential to acquire a solid culture, to learn and reflect permanently. Useless however to wait “to know some enough” to undertake a creation. We will never know any enough. All our life, whatever our efforts, we will have *to learn* always *much*.

When one goes from a city A to a city B, the knowledge of only one way, more possibly that of some alternative routes, are enough amply. Useless to study as a preliminary all the roads of all the chart. The same applies in metaphysics. Better is worth to start by acquiring knowledge which we need in the immediate future, then to extend them to the wire of our peregrinations. The knowledge (makes ignorances of them) encyclopaedic will come later.

As soon as you have an idea, leave with it and make evolve/move it. With the need reorientates themselves if you travel false and changes way. But perseveres if you are on a good way, even sown obstacles. It is of course not always easy to distinguish “distorts road” and “good way”. Simplicity constitutes a rather reliable reference mark, because the inextricable complications are often those of the impossible one.

An average essence to know if one is on true or about a false road is to seek facts in contradiction with the theory:

- Or the theory is only incomplete. It can then adapt, spread, and integrate
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without inconsistencies of the facts a priori contradictory.
- Or the theory is false and it must be rejected. A new version will have to exclude whole or part from it from the principles.

Find your own balance between expertise more or less thorough (but narrow), and general knowledge (but surface). There is not more glory to be a “expert” than a “general practitioner”: what imports, it is to find its way and to smell themselves well in its skin.

The data transmission towards the others

Perhaps extremely of your knowledge, you need to create your personal work, to communicate it in a more or less remote future. The data transmission towards the others is subdivided in two categories: quantity and quality.

- **Quantity.** To learn how to make bicycle, bicycle should be made. Metaphysics, it is similar. One cannot learn how to make some without making some. Leave to break the figure, to tell anything. Thus first stage: crude of dismantling, an accumulation of elements not intended for a large audience. Seek in all the azimuths, explores various tracks a priori interesting. Select then the best fragments and assembles them according to a logical order. If you do not know what to make certain elements however interesting, classifies them in margin of the remainder. Thus will be born a first incomplete version and faggot from errors of your project.

- **Quality.** Make evolve/move the baby by small keys and final improvements. Work a little the every day, during several years if it is necessary, until you judges drinkable tone result. Attention however not to be made some too much, day before not to be poured in a style kitsch. In addition, more you will attack difficult questions, more they will take time to you and more your productivity will border zero.

It is to better do short, but quality, that length, but no one. Prune much if it is necessary, only preserves what appears about sure you, in order to develop your ideas on the most solid possible bases. Preserve all the same some time your rejections in preparation for possible repentances.

To seek new explanations

You can discover by yourself of the things which you never learned, which is not in the books.

Two useful recommendations:

- Dreamed around your project in construction. Let your spirit rove, to flicker around new ideas, to be posed on errors in what you wrote.

- When you find a priori an idea interesting, note not to forget it, to write it immediately or a little later. An idea forgotten risk never not to return.

To discover something, the basic method is to put forth assumptions and to check them. If you have the idea of an explanation, it is yet only one assumption. It you should then you make sure that it stick with the reality. For example, if you put forth the assumption that the matter does not exist objectively, wonders if that corresponds so that physics describes nature. It is not inevitably easier, but it is surer of speaking as much as possible about laws and verifiable facts.

It will be perhaps necessary for you to temporarily give up your research metaphysics during several days, several months or several years, all the times that a too difficult problem will block your progression. These periods are very décourageantes. But your subconscious quietly continues to work, then one fine day, it is it eureka of Archimedes, or the apple of Newton. A catch occurs with the turning of the observation of a banal fact or a daydream. Alas there is no miracle. We will always run all the risk to be confined of a stupidity, even after several years of gestation - or nothing the whole: it also happens that the inspiration does not come hopelessly. It is then necessary to reduce its ambitions. I.e., in a first stage, to solve the problem very roughly, “by far”. Then in a second stage, to approach as much as possible what physics says.

Another method is to divide the difficulty to find an explanation, not with all the problem, but with one or the other of its aspects. Then with another aspect. And so on, until something of total emerges from the whole of these partial explanations, more or less alambiquées. It is all the difference between crossing a wall of only one jump and using a scale. But there still, not of miracle: early or late arrives one moment when the following level is inaccessible, even by dividing the difficulty as much as possible. It is then (still) the forced pause, for an unspecified time. These hitches are difficult to manage. Let us consider with philosophy that essence is not outward journey quickly, but to progress.

Failing to find the solution, tries to beat about the bush, to expose what you can say to one moment given concerning the subject. This work constitutes a stage in your research, it has value only for you. It does not have an explanatory value for the others.

You can also start from more or less eccentric assumptions and let yourself guide by their logic, without knowing in advance where they will carry out you. But it is a game of chance

there: you will need chance to find something of interesting.

Concerning realism in metaphysics

Traditional logic remains a point of central anchoring of our designs of nature because our five directions dictate it to us. But it would be useless to limit the universe so that can perceive our five directions of them. Our comprehension of the universe in this case too narrow, too surface, would be deformed too much. For example, it is not because we do not see the radio waves or the microbes which they do not exist. Modern metaphysics is based thus on the diagrams of traditional logic only to exceed of them the limits, to stick as much as possible with the strange quantum and relativistic results of physics.

When a new physics, with new basic ideas, is born, it will move away perhaps more still than today of traditional realism. Metaphysics will have to then bring up to date as it will be able its designs.

Bottom with the form

To cross/stick the mixings and the remix facilitate largely. This work evokes that of a sound engineer in a studio of recording. The possible variations are numerous, but they go from best in the worst case.

One of the first basic rules distinguishes the secondary, principal and general ideas:

- The secondary ideas are precise details which can be summarized without denaturing the bottom of the text. (Small branches of a tree.)
- They gather within the framework of principal ideas, which correspond to the various paragraphs. (Large branches, the trunk.)
- A logical sequence of the paragraphs declines the general idea of the text. (The whole of the tree.)

This vertical hierarchisation of the ideas must be also ordered according to a horizontal

advance, during which you accompany your reader, by requesting the least possible its “capacity of divination”, until your conclusion. This fitting enables you to offer a true meal, not a large basin where all is mixed, of the entry to the dessert. For example the journalistic style goes classically from most important at least important, to go right to essence and to hang a reader who will not go inevitably until the end of the article. While the administrative style follows the opposite way, so that the last idea carries the conviction. But no style is to be idealized: all depends on the text and the context.

The final plan of the text should nevertheless come only in the last. It is to better start by working the bottom, and then the form. This method is indeed that which leaves the most freedom. It makes it possible to start to find, without prejudging what one ends up finding. It avoids empêtrer the future lucky finds in a preestablished diagram, which is likely to obstruct possible evolutions of the text. For example, of the elements which appear a priori without relationship between them can in makes be dependent, of the apparent causes can be also the effects of hidden causes, of the very simple phenomena at first sight can, after examination, to appear very complicated, of the muddles can be simple things evil included/understood… Like Paul Valéry says it: “There is an incalculable difference between the embryo of an idea and the intellectual entity which it can finally become”. Therefore, your ideas must be ordered, but, I repeat it, the final plan of the text should come only in the last.

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Consult a dictionary all the times that you test a doubt in connection with a word. Do you employ the good synonym well? For example, *exactitude* relates to any margin of error considered to be acceptable, whereas the *precision* is more specific to a measurement. The DCU seeks to be exact compared to physics, but it is not precise. Attach also a certain importance to the link-words, which articulate between them, with nuances, your ideas. For example “however” or “however” are opposed to what has been just said, whereas “however” mark only one particular case and does not contradict what has just been known as.

On the other hand do not lose too much time with the literary beauty. You make metaphysics, not of Flaubert. As in mathematics, as many time repeats as necessary the terms of your logical relations, reformulates your ideas as much as the clearness of your reasoning requires it. Nevertheless try to limit the damage, to avoid striking your reader with a too heavy and repetitive style. Write and corrects itself until well controlling the formulation of your ideas. With the final one, if your logic is pure, without fraud which makes spot, it will be very beautiful. At all events, the bottom takes precedence over the form.
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Metaphysics is like the foot or the music. Everyone can leave the basic level, to go towards highest. And it is not essential to be an expert to appreciate a good metaphysics, to take pleasure to explore it.

"The art of comic, it is to give the impression which one makes anything when one worked ten hours on a mimicry or a sentence."
(Coluche, *Thoughts and anecdotes,* seek it midday, 1995)

Anguish of the written page

To calm the anguish of the white page is rather easy. It is enough to throw in bulk ideas on paper, concerning the subject, of the one of its aspects, or relating to nearby topics. An ordered anthology of these elements constitutes then the starting point of a logic to be developed.

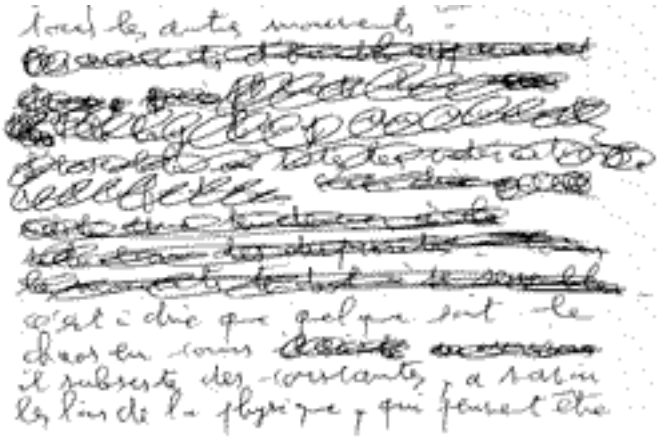
- I do not have anything to write. To write something nevertheless, I will explain why I do not have anything to write.
- I cannot thus explain any more why I do not have anything to write, since I have just found something to write.
- I do not have anything to write…

There is worse than the anguish of the white page. There is the anguish of the written

page. The spontaneousness of the first jet has its utility indeed, but it is not enough.

> Infinite loneliness to be it only in the universe with being itself…

Dream as much as you want, cultivates the most insane ideas, but remains conscious owing to the fact that they are only dreams and insane ideas. It is there the source of many new ideas, but you will have then much to work what you will fish there.



A fragment of the worked DCU, then rejected
(Scan: DCU)

Although it is an empirical exercise, it does not remain less essential about it: wonder permanently how what you produce can be interpreted by somebody who did not write it, which does not have the same culture inevitably as you, which is unaware of ton personal history very. And with you, do you really like your works? You are yourself your first public. If you tirednesses of certain elements, there is extremely to bet that the others share your feeling. To see your creations of a new eye, lets “put back them”, then rediscovers to them some time later. Many unperceivable imperfections “hot” become more obvious “cold”. For example:

> God explains the universe, but the universe does not explain God.
>
> That one believes or that one does not believe in a God, a certain time is necessary to realize that this thought is false. Nothing proves indeed that we know all the universe and that hidden elements do not explain God. This thought amalgamates the objective universe with what know we.

Which are really your ideas? Do your arguments correspond to facts? Can you give real examples? Is your reasoning consistent, or you justify anything by anything? Don't you say something to express another thing indirectly? Think of train holding a conference on your production. Answer in thought the questions of your public. What is there of more important for you, in your metaphysics? Can you show the validity of it? Which can be the consequences of your theses?

To expose solutions, even very clearly, that is not enough. Us know all of problems which can appear very serious, we know also the remedies, not inevitably imbuvables. But we do not want to follow the therapeutic ones recommended. The smokers, for example, know the problem and the solution, but they continue to smoke. They do not want to stop. How thus to give to the others the desire for exploring what one exposes?

To answer this kind of questions, it is to have better followed higher studies: that helps. But if you are an autodidact, thinks of the creators of the masterpieces of the jazz, the blues, the rock'n'roll and other musics: no I believe is not a first price of Academy. Many besides even never put the feet in an Academy - or if little. Say yourself although only your results count. When you enter in scene, you here are vis-a-vis your public, which does not ask for your diplomas, but to play well. In the same way, when your readers open your Internet site or your book, they do not wonder your diplomas, but to help them with including/understanding a certain number of things well. If a popular metaphysics exists one day, its tenors will not be inevitably most graduate. But they will want to seek and they will communicate to their public the desire for being plunged in their universe.

Nothing stops metaphysics
Not even power failures
(Photograph: Ancient Virtual Typewriter Museum)

To avoid false the good ideas

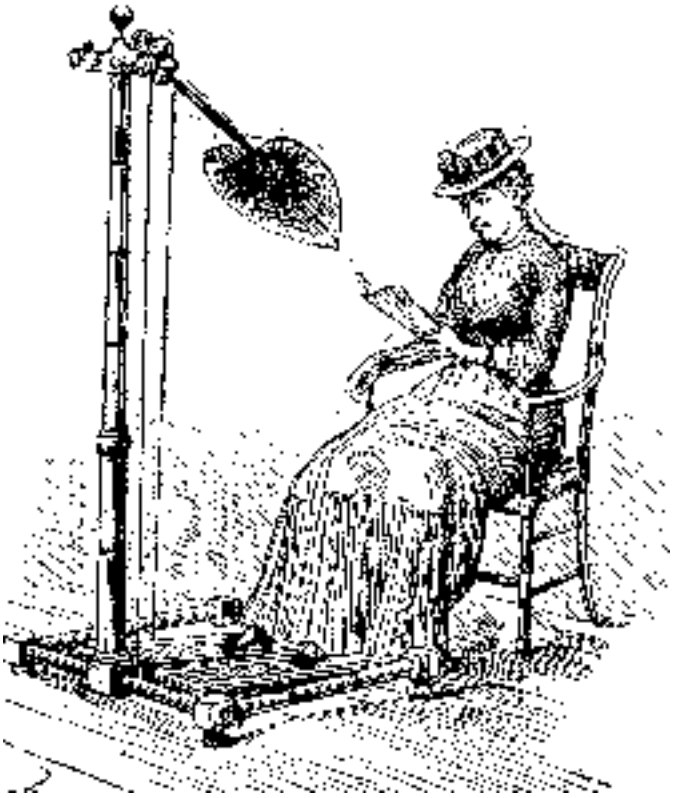
They are always likely to make us waste time, to carry out us in dead ends. For example if I say:

> “All is moving compared to all. But the universe as all is moving compared to nothing.”
>
> That has the strongly deep air. But that is not it. What a “movement compared to nothing”?

Do not only support mordicus “logical” sights of the spirit: that does not make advance the schmilblick. It is not because a thing appears “logical” that it is inevitably real.

- I think a trick.
- If I were mistaken I would be an idiot.
- However I am very intelligent (or very graduate, or very graded, or very rich person, or very free to think what I want, or very piles…)
- In short, I am not an idiot.
- Thus what I think is probably true.
- I can exempt myself to check if it is real or not: the facts would confirm doubtless what I think.

The fact that a thing appears *probable to* you does not authorize you to comprise you as if it were *certain*. It only authorizes you to comprise you as if it were *probable*. Remainder open to all that you do not know, with all that is likely to show you that you are mistaken - or that you are right, of course. That you are right wrong or, remains always ready with a questioning of what you think, with the need for new research.



A ventilator of apartment without much future:
a concrete example of false good idea
(Scientific American No 595 of May 28, 1887)
(Reproduction: Project Gutenberg)

To avoid of you enferrer in hazardous sights of the spirit, do not take your “probabilities”, so high are they, your “impressions”, so major are they, your “assumptions”, so brilliant are they, your “presumptions”, so suspicieuses are they, your “interpretations”, so subtle are they, your “convictions”, so popular are they, your “conclusions”, so final are they, for proven certainty. Nature is at this complex point which it is impossible to include/ understand the integrality of a fact, whatever it is. Our “major convictions” are more or less surface and the doubt is essential. If I “believe that…”, even deeply, it is inevitably that I am not “certain of…”.

If you find an explanation to a phenomenon, it is not inevitably right and it is not inevitably the only one which is possible. You can always suppose all that you want, but make then research necessary to validate what you think, which you tell. Or then specifies: “I suppose that…”.

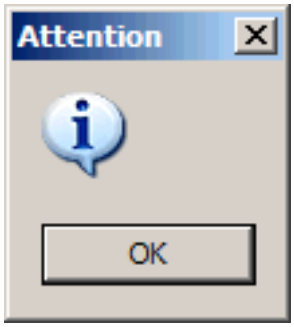
We have all tendency to lend to the others probable”, “logical” psychology a “, supposed, which illustrates the cogency of our prejudices. What leads us to tint the remarks, the actions of the others with a philosophy which is not inevitably theirs. For example if somebody says that a task is “difficult”, he does not say that it is “impossible”.

If we seriously seek to include/understand the point of view of the others, the large

features of their *real* vision of nature, the world, we should admit a priori that we do not know anything of their ideas. We should then check our assumptions by melting us on *real* remarks and facts.

If we discover facts in contradiction with our reasoning, it is inevitably that something does not hold upright in what we think. It is perhaps a little too easy to suppose that nature is absurd and that our contradictions are “natural”, not awkward…

> **Paralogism:** false reasoning makes in good faith
>
> (opposite with sophism).
>
> *The Petit Robert*



If you did not study a subject, at least avoids speaking about it in a peremptory way. It will be also very benefit for you. The “chance” indeed smiles more to those which behave in a rational way, that with those which take of the sights of the spirit for divine revelations.

And even when we studied a subject at bottom, we are likely all, always, to mislead us on some of its aspects. No one is not infallible a caïd, not even oneself, not even the others. Not even those which shine of thousand fires in such or such field. Not even those which seem to be played of all the risks. Not even those which carry spiked helmets. Not even most beautiful. Not even those which do you gifts. Not even those which say you that you are formidable. Not even those which require you much agent. Not even… Even the great minds are not with the shelter of the greatest errors.

On the other hand it is not because you are not famous that you can carry out only small things. It is indeed a self-evident truth: before being famous, the future celebrities are not famous. At their beginnings, the famous unknown ones propose a work worthy of a celebrity. For example in 1905 three articles are published. They mark the result of research, among more at a peak of the time, and the advent of modern physics. Is their author thus a celebrity? He is becoming it. But officially, Albert Einstein is yet only one young employee of an office of patents.

No need to be notable to achieve notable works. With work necessary, everyone can work out an interesting metaphysics.

A exercise of metaphysics

Critical concept of negative universe contained in this short version of the DCU:

Nothing can be created “in” nothing. And due, since precisely there is nothing. It is thus necessary that nothing is preserved in a way or of another, without what it would not act of nothing. Then we will postulate the existence of two overall symmetrical universes (of which ours): positive and negative. The whole of these two universes gives a null existence overall, i.e. an inexistence.

Each one of these two universes is positive compared to itself and it is jointly negative compared to the other. It is also “infinitely large” compared to itself and it is jointly “infinitely small” compared to the other: one is the absolute particle of the other. In the relatively positive universe each relative particle is thus the relatively negative universe.

The form of the movement of the respective space loops of these two universes of contrary signs is not necessarily identical, symmetrical. A movement can indeed compensate for another in multiple different ways of them. The two universes are thus not necessarily universes mirrors.

If relatively positive time and relatively negative time moved away one from the other, two moments ago present: positive posterior at the origin of times and negative former at the origin of times. These two moments present however would be “in” nothing, in a time overall no one: only a non-existent time would separate them, i.e. nothing would separate them. And it is what occurs. Nothing separates these two moments present. They amalgamate and they give one moment present of which the clean duration is null.

~~~~~~~~~~~~~~~

Some questions, to help you in your criticism:

- What, in nothing, would differentiate two universes from contrary signs?
- Is the fact of admitting that one consists of matter and the other of antimatter sufficient?
- Is a space continuity between relatively positive loops and a relatively negative absolute particle possible?
- Is a relatively negative universe really necessary, or is it superfluous?
- Why would a relatively negative universe, if there existed, be also furtive, since physics nothing observed forever of such?

Endeavour to apply the councils given in this section. And then, if the heart say some to you, go in your preferred bookseller and buys a good book of popularization of physics or
~~~~~~~~~~~~~~~

astrophysics.

It is not enough that the means are rational. It is necessary that the objectives are it also: to release the individuals of the exploitation, oppression, to found a world righter. Without what rationality, so scientific and effective is it, does nothing but bring tools to the capacities in place. Rationality is thus never neutral: deprived of social project, it is always preserving. It is reduced then to a "technique", with the service of interests which it accepts passively.

"*Elisa*: Are you interested by a philosophical reflexion on physics?
Marc Lachièze-Rey: Ah, in any event, yes. There is something which is absolutely well established, and which often the physicists forget, it is that all physics rests on metaphysics. Presupposed the metaphysical number one, it is that one can describe the world by a theory, and that there are for example universal laws, and that there is a Universe. All that, it is presupposed metaphysics. Obviously in practice it is forgotten. When I solve my equations, I am not saying to me that all that rests on metaphysics. But in my opinion, one cannot be a good physicist if one deeply did not become aware of it."
(Brown Elisa, *Taste pricking of the Universe, the* Apple tree, 2004)

Science without conscience and conscience without science

The natural science which is unaware of the social sciences leads to a science without conscience, which, as each one knows it since Rabelais, “is only ruin of the heart”. As the social sciences which reject the natural science lead to a conscience without science, which leads for its part only to arbitrary opinions.

- To think that it is enough to invent new technologies so that humanity lives better defends the natural science badly. All depends indeed on the hands between which they fall, i.e. interests that these technologies serve. Let us notice that the traffickers use average scientists to manufacture counterfeited drugs or drugs, for mondialiser the crime. Only fact of their use, even the tops of rationality can be turned over in their opposite and touch the bottom of the irraison.

- As to declare inefficient as soon as it is a question of studying the most general interests of the system social in place defends the social sciences badly. The search for what there is the universal one in the whole of the cultures, of the economies, in civilization, is the only way of managing to find laws scientific which are not only those of particular systems. The rigorously delimited subjects do not have the exclusiveness in rationality.

The natural science seeks means, while the social sciences seek the orientation of the use of these means. Knowledge, technologies with the service of which type of company?

> As Herbert Marcuse wrote it on this subject, quoted by Jürgen Habermas in *technology and science like “ideology”,* Gallimard, 1973 for the French republication, “the power liberator of technology - the instrumentalisation of the things - converts itself into obstacle with the release, it turns to the instrumentalisation of the man.”

However a guéguerre prevails sometimes between the natural science and human. The stake is mainly budgetary: it is a question of gaining in influence, in being able, to recover part of the appropriations that the public bodies, the private company, allocate with the “unfavourable camp”. The dominant ideology of the moment preaches competition indeed, not solidarity.

It is more the rationality of the objectives and the results, which makes the scientificity, that methodology.

Where is the border between the natural science and human?

A general information is not a law: it admits exceptions. It can however be rational, if it is based on reliable statistics, or if it falls under a causality which corresponds to real phenomena. The daily bread of the social sciences is recognized there. For example, statement which it is dawning at midday is not a law, because it is regions where the day, like the night, last six months.

Then can one say that the social sciences concern general information, while the natural science would concern laws in experiments validated? Mow! The history of the natural science shows that even the most solid laws a priori can prove to be only general information. Even the parallel straight lines can cross. Even the light can cross the walls. Even lead can be transmuted into gold.

Then is the science of yesterday the metaphysics of today, and that of today the metaphysics of tomorrow? Finally, a statute of “natural science late” affuble it philosophy? Not, the scientific laws of yesterday remain scientific laws today, in their respective fields of validity. But then?? Wouldn't the philosophical general information be they not they also scientific laws, in their respective fields of validity? There is difficulty. There are indeed as many different philosophies than philosophers, which is not the case of physics. Though… They are not the assumptions and the theories which miss in physics, each researcher works out to them his. In a certain way, there is there too as many physics as physicists. There is however in physics something whose equivalent remains untraceable in philosophy: a standard model. It is the experiment which slices, it filters assumptions and theories and it results from this a consensus in the community from the physicists. This model progresses to the thread of assumptions, of new theories, whether the experiment, the observation, validate or do not validate. Ultimately, the criterion which distinguishes the scientific and philosophical truths is a consensus based on the experiment? But if I say that Communism, in all its antidemocratic versions, is always a social catastrophe, I would collect a broad consensus in the community of the philosophers, agreement him so founded on the experiment, the observation. My philosophical law would then show the principal characteristics of a scientific law. In short, it is impossible to decide between strictly the natural science and human: a continuity links them.

Where is metaphysics, in the field of knowledge?

Metaphysics is a speciality of the social sciences, which paradoxically is interested rather in nature. It thus constitutes an interface between the natural science and human, all the more effective as it is rational. The natural science indeed is made by human beings, their bases are metaphysics. The new ideas in natural science start with being human, metaphysics thus, before becoming physical, if the experiment or

the observation validates them.

From fragmentary rationalities to the reason

There is no absolute dichotomy between some “illuminated science” and some “enlightened science”. There is rather a progressive variation of reason between these two extremes. The distinction between the scientific and nonscientific fields is relative: an assertion is more or less a scientist that another. For example to say that the Earth is round is a more scientist than to claim than it is punt. But at the same time, this assertion is a less scientist than to proclaim than the Earth is flattened a little with the poles, because of its rotation.

It is this absence of “purity” of “pure” sciences which explains why even in physics, metaphysics is in fact a tool like another. Why the physicists seek do to unify the fundamental interactions, or the families of particles, if it is not for reasons metaphysics? A fundamental unit of nature indeed is not physically shown. The teaching of sciences would be quite advised to include the study of rational metaphysics in its programs. In order to familiarize the young people with the search for new ideas, instead of confining them with the application of scientific receipts which always go.

> Metaphysics is superfluous to carry out scientific computations creatures of habit. But it is essential to seek to see the things under another angle, to seek assumptions, new observations. Ultimately, more the natural science and the social sciences rise in the reason, more they meet.

The rigorous reasoning is not the prerogative of the only natural science. It is not excluded that certain scientific and philosophical steps are complementary. Certain considerations metaphysics can give ideas of new scientific assumptions, which will perhaps lead to new experiments, new observations, which will perhaps modify in return metaphysics and the starting assumptions: egg and hen…

Quite malignant that which explains reality with its only science

Reality is strange and difficult to apprehend. It encourages us to solidarize our forces,

which they are “natural” or “human”. It is not because the results of many research are modest, that we should be confined with the fields where we are most erudite. The crumbs of truth which we can grappiller in complexities often too large for our modest spirits, it that of is always gained, it is better than anything.

The principal difficulty for each one being then of finding a common language with others, from which the speciality is different from his. A knowledge by each basic idea of the specialities of the others can make it possible to throw bridges between the disciplines. Scientists amateurs of philosophy and philosophers amateurs of sciences: here is in prospect a creative world in search for ideas, new tracks, far from the routine.

Which indications science does it give us on what is reality in oneself, on what it is beyond our mental representations founded on our five directions?

Science is used to make telephones, treatments against the cancer or of the reconstitutions of dinosaurs. Why wouldn't it also be used to make metaphysics?

Science is useful including making philosophy, as philosophy is useful including making science.

All the philosophical considerations on space, time, nature, the universe, must endeavour to respect what science said in connection with these subjects - with the proper perspective however. Scientific knowledge evolves/moves and the philosophical analyses directly related to science must nourish doubts enough to reserve freedom to evolve/move they too.

Is any science necessarily experimental?

> “Mathematics from our point of view is not a science, in the sense that it is not a natural science. The checking of its validity is not done by the experiment.”
> (Richard Feynman, *Lessons on physics* page 59, republication Odile Jacob, 2000)

Same criticism can be opposed to the metaphysics, which it either, in general, does not validate its assertions by the experiment. But these exclusions of science are too restrictive. Mathematics, like rational metaphysics, can be indeed checked indirectly by the experiment. If a calculation falling speed of a body is right, it is also that mathematics is in this valid case. In the same way, if a speculation on nature gives an account of observable phenomena correctly, it is that metaphysics is in this valid case.

Imagination

The Einstein young person thought overlapping a photon. Which is the “point of view” since an object which moves at the speed of the light, which remains constant whatever relative speeds? To maintain this constancy, of the compensatory variations of space and/or time are necessary.

Why not bring out the photon of Einstein of his garage? Why imagination would not lead to profitable results only when it is about work of personalities recognized of the past? Without rational work of imagination, without conceptualization, there are no new ideas in natural science, as in social sciences. With the only reason it is possible to develop existing paradigms, but it is impossible to invent the new ones.

Why the pupils, the students, feel don't the need for being provided with a panoply of tools, effective methodologies, to be confined their intuitions? Perhaps because their own ideas are regarded as negligible quantity. They would however discover that the various matter training is not a constraint as well as a progression in a personal research. To invent, to imagine, create, it is necessary to be original, but it is also necessary to be able to conform to many disciplines. And less one controls a science, more it is essential to conform, under penalty of saying or to do anything to it.

A school which in general opposes the reason to the particular imagination of the individuals lives like a constraint, in front of which it is necessary to choke its creativity to adopt certain structures of personality, which make it possible to make a success of its schooling. However the ideal would be to be able to test at the school a great number of different matters, until finding at least enthralling, to which the pupil smells intuitively that it can bring something of nine. But to launch out in this matter, it is necessary to know to read, write, count, dialogue, study lengthily… As many “constraints” which are not, insofar as they make it possible to progress in a field which one likes.

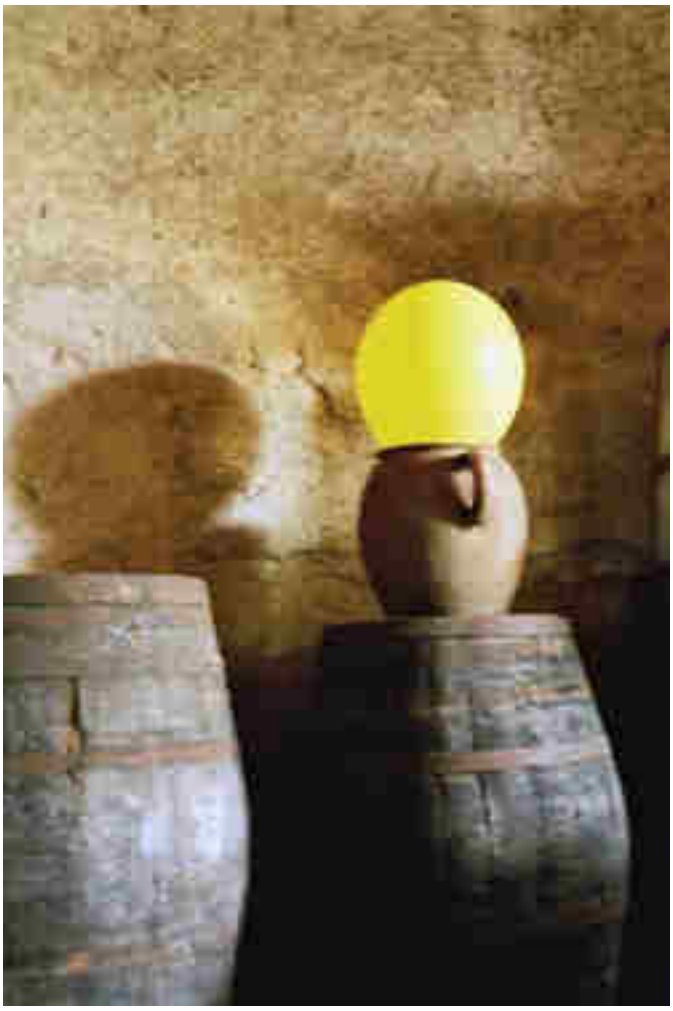
A great metaphysical question: what the possible one?

Does an infinity of possible worlds exist objectively, or exists it only in one logical space? Or both at the same time? For example a world in which the Eiffel tower would have five feet would respect the laws of physics: it could exist objectively. Then does there exist objectively like parallel world?

Is a possibility which is never brought up to date really possible? It is allowed to doubt it. If an infinity of worlds which respect the laws of physics never do not bring up to date, it is that they are not possible. Whereas to think of the validity of the laws of physics, which are primarily laws of the impossible one?

To put such questions can seem oiseux. However we all pose we them, the every day, in a very concrete way. The least of our projects indeed covers our design with the possible one. If we knew some more on what is or is not possible, we would be helped in all our choices. An initially metaphysical knowledge, then as scientific as possible… of possible, would open new horizons to us.

Such a research requires the contest of the natural science, human… And of much of imagination, because with regard to the possible one, nature is particularly imaginative.



Prototype of the chemistry experiment: -)
(Photograph: DCU)

BIBLIOGRAPHY

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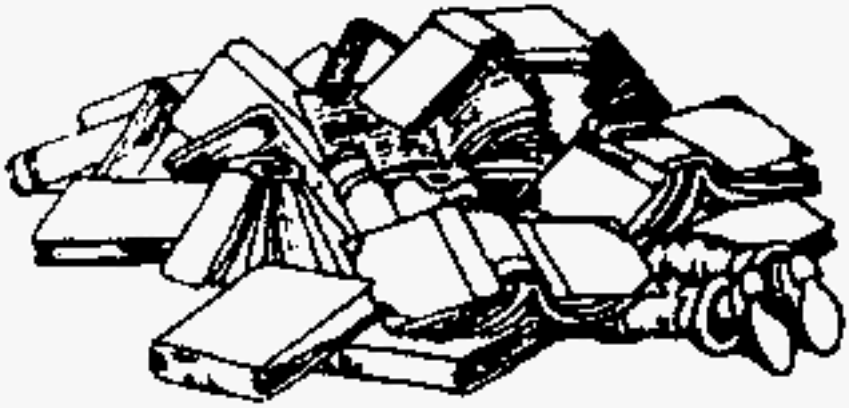
Some works which particularly marked me the spirit. This choice is very subjective.

Some of these books are not available any more in the trade, but it is possible to find others of the same kind of them.



(Reproduction: CNT Bordeaux)

“Our heart is harmonic, whatever its IQ, and the need to find or to feel an ultimate order or a harmony is a universal need for the human spirit, whatever its faculties and whatever the form which this need can take.”
(Oliver Sacks, the *man which took his wife for a hat,* Seuil, 1988)

David Bohm,
The plenitude of the universe,
The Rock, 1987

> “I will say that in my scientific and philosophical work, my principal concern was to in general include/understand the nature of reality and the conscience in particular like a coherent whole, which is never static nor complete, but rather a process without end of movement and deployment.”

David Bohm blew me the idea of the waves of relative particles in this book, which is closest to the ideas of the DCU that I know.

David Bohm, F. David Peat,
Conscience and universe,
The Rock, 1990

> “By considering the implications of the scientific attitude, it seems quite strange that, at least in the Western culture, it was considered to be necessary only in limited fields. It is as if one said: “In my laboratory I seriously endeavour to admit the facts, but in the other fields of the existence, like the human relations or the policy, better is worth to distort the rules each time it is convenient, and to adapt the facts to the needs, whatever they are.” That would create a formidable revolution if it were admitted seriously, sincerely, that the scientific attitude is valid and necessary in all the aspects of the existence. Then, the major contribution brought by science to the creative dash would take the form of an extension of the scientific attitude with all the human ratios.”

David Bohm and David Peat expose in this book a metaphysics of most beautiful water.

Jean-Marie Brohm,
What the dialectical one,

Savelli, 1976

A serious introduction and quickly read to the dialectical Marxist, in whom I discovered the dynamic unit of the opposites.

Richard Feynman,
***The nature of physics*,**
The Threshold, collection Points Sciences, 1980

I discovered the principle of minimum in this book.

> “The particle grandiosement explores all the curves, all the possibilities, and decides which way to borrow, by choosing that for which our quantity is minimal.”

I deduced from it that the universe is to some extent a maximum with a minimum of means.

One can also find in this book the idea of a single particle which is duplicated, in the text of the Nobel conference of Richard Feynman in 1965:

The telephone sounds and John Wheeler known as:

- “Feynman, I know why all the electrons have the same load and the same mass.
- Why?
- Because they all are the same electron!”

John Wheeler spoke about temporal loops. This concept is found in the universe of Kurt Gödel, in 1950. (Mario Novello, the *circle of time,* Atlantica, 2001)

Antonio Fischetti and Tignous
Charlie jumps on the sects
Charlie Hebdo except series n° 18, 2004

The human credulity, madness and the swindle reach incredible tops. An incentive to

develop a rational, respectful metaphysics physics.

Martin Gardner,
Relativity for all,
Dunod, 1969

I discovered curved spaces and cosmology in this book. There is a beginning with all.

Fred Jerome
Einstein… A traitor for the FBI
Editions Clipping-Rock, 2005

To my knowledge, the most enthralling biography of Albert. Our friend made a success of his career of physicist without being crushed, as a militant for the civil laws.

J.P. Moroni,
The incursion,
Gaston Lachurié, 1987

Although written by a professor of physics and biologist, this work is to some extent traditional ignored of modern metaphysics.

> “Because the brain restores (how, God alone knows it) the flavour of the coffee and the agreements of the ninth, as well as subtleties proustiennes of the existence; that it restores them is an abuse language besides: it creates them. Because the sky is not blue: it emits in a given wavelength, and it is all; as for, semi, the ground, they is only vibration at the beginning, it is the brain which gives them their intimate colouring, the only one that we know. [...] Without the unknown mechanism which operates this ultimate transformation of the information worked out by our brain, in conscious feeling, gasoline, the world such as with a high degree of accuracy can

> describe it to us the thousand detectors by which science prolongs our bodies of the directions, is empty sounds and lights; it is nothing of what know we, it is only perfectly foreign fields with the flutter of the feelings. It is completely foreign for us, if as well is as it has, even, some reality."

Rudy Rucker
The fourth dimension
The Threshold, 1985

A help to intuitively conceive the relative play of space dimensions.

~~~~~~~~~~~~~~~~

Example:

A character 2D can only swivel around points in the plan of space 2D. The same applies if he knows only the surface of a sphere.

Rotation in 2D:

> **Only a somersault makes it possible to look behind oneself. Impossible indeed, to be turned over on the side, since there is no thickness.**

If space 2D is plunged in a space 3D, the character can have left his plan 2D and have
~~~~~~~~~~~~~~~~

turned over, as can be to it a floating postage stamp on the surface of water. The 2D sees it then transformed into its symmetrical: recto and back are reversed.

Before and after reversal in the 3D

(Photographs: DCU)

This logic can be transposed with the 3D plunged in the 4D. After reversal in the 4D, a character becomes what was before its reflection in a mirror. For example, a pirate with a wooden leg on the right finds himself with a wooden leg on the left.

Congratulation! You have just reached the last page of this site

Section 17

IN MARGIN

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It is all for the moment, the friends!

Thank you for your visit.

I hope that the reading of this site gives you desire for developing to you also your own metaphysics.

So long.

Critical and welcome suggestions!

ladcu [At] wanadoo.fr
(Replace [At] by @)

To finish, here a page of various reflexions, search for new tracks, elements which should not appear in a serious site…

“Which breaks glasses drinks with a sponge.”
(Cavanna, the *new stupid and malicious encyclopaedia,* Albin Michel, 1982)

A proof of the inexistence of God

If God existed, it would be omnipresent **and** perfect.

However the man is in the space time and it is imperfect.

Thus God, as being perfect, intègrerait in his divine omnipresence the imperfect man. There is an insurmountable contradiction. God would be perfect and jointly, where is the man, it would be imperfect.

- Or exists a perfect god, but who is not omnipresent.
- Or exists an omnipresent god, but who is not perfect.

Thus God does not exist, since if there existed, it would be omnipresent **and** perfect.

Conclusion: since God does not exist, the divine laws are actually human laws. Better is worth to choose rational human laws, which make take precedence the thought over the belief. In way, as much as possible, to live reasonably.

This proof does not kill nevertheless the dream: it does not exclude the assumption from a life after death…

A small question

> **A small question, which one would not put to a physicist (still only), but that one has the right to pose with a metaphysician.**
>
> **An intrinsically coherent universe does not admit “small departures from the rule”, of “small inconsistency”, even at the moment of died of the individual. The history to be it is thus not created free, “in addition”, to finish way perfectly absurd in an absolute self-destruction: it also is intrinsically coherent. An absolute existential nonsense, such as described the atheistic existentialism, cannot thus exist. The first answer which comes to mind is that of the existence of beyond. What can we say on this subject?**

I esplic.

For any answer, I can only let rove my imagination, to erect scaffolding an assumption that I am not able to validate by the experiment.

On the one hand, according to universal coherence, three parallel universes hyperdimensionnels are imbricated in ours. Let us imagine that beyond is located at it.

These universes hyperdimensionnels are translated for us by the three interactions electromagnetic, strong and weak. Thus if I transform myself into “being electromagnetic”, I have access to beyond.

However, an at least mathematical symmetry exists between the gravitation and electromagnetism. If I become “luminous”, perhaps that the “electromagnetic world” becomes for me material, while the world which, hitherto was “material”, becomes for me as imperceptible as the light. If I become “luminous” in our terrestrial world, I become at the same time “material” in at least a space hyperdimensionnel.

In addition this passage of *Supersymmetry,* by Gordon Kane, the Apple tree, 2003, leaves me thoughtful:

> “All our directions are related to mechanical and chemical effects, founded on the electromagnetic interaction. The sight is anything else only one interaction between photons and the electrons of our eyes, associated electric signals which walk on then to our brain. The touch starts with a pressure on the level of the cells of our skin which generates other electric signals, which are propagated to our brain. Hearing, it is simply the shock of the molecules of air and the molecules of our tympanums, which interact via the electromagnetic force.”

Because of its heat, electromagnetic activity of the nervous system, the body emits weak waves permanently, that the history of the individual modulates more or less in amplitude and frequency. For example if I listen to music, my auditive nerves emit electromagnetic waves carrying this music. An electromagnetic bubble extends thus around each individual. Its ray has a dimension of which the number of light-years is equal to the age of the individual. When the body dies, the history of the individual remains thus completely. In the same way, the waves emitted at one time given by a radio operator transmitter “survive completely” the stop of their generator.

However the “body waves” have a particular characteristic: they are it “I”, the integral memory of the individual. Perhaps death constitutes it one second birth, a metamorphosis: the body would be confined of its characteristic “I”, who would become autonomous. At the time of death, the body disappears from its “electromagnetic bubble” and the individual would become nothing any more but the recording of all than it lived. For this reason each one “would see” (would become) the whole of “film of its life” when it trespasses.

A symmetry between material and luminous beings
does it exist?
(Photograph: DCU)

The waves of “I” thus constitute a “bubble of very particular light”, since it is about the history of a human person, who after death become this person. Before death, they are diluted passively in cosmos, then at the time of the demise, there is décohérence of the bubble, which thus passes from formless to formed. Perhaps this bubble then adopts it the human shape of the body which generated it.

In this operation, the individual dies in the dimensional space, which becomes for him luminous. But in same time, it emerges in a space hyperdimensionnel, which becomes for him material. Perhaps this transition is lived like the crossing of a tunnel, such as those which knew an experiment close to dead describe it.

If the individual becomes all that it lived, then it can nothing hide with other late its acts of generosity, like its turpitudes. From where a mixture of paradisiac and infernal feelings, according to what it feels, confronted taking into consideration the others.

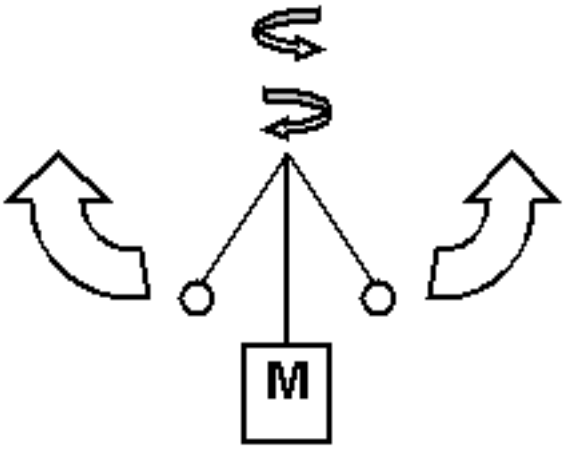
- Show to me the validity of what you have just written.
- I cannot to me sior: it misses pages with my book of metaphysics, precisely with this lesson there.

That does not become lighter

I really assembled this experiment of physics:

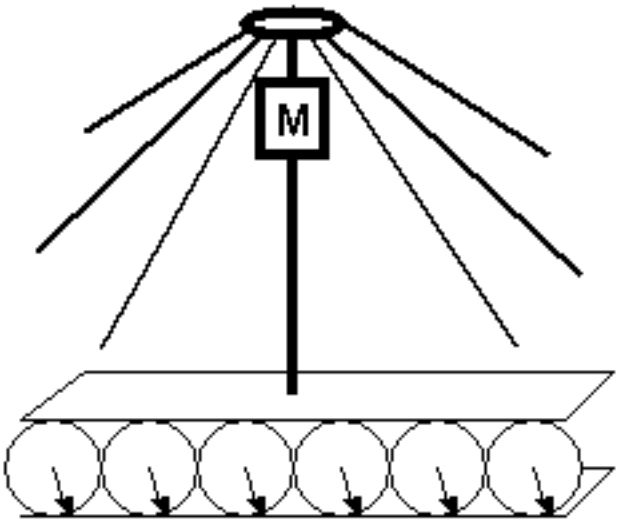
That is to say an engine M, which makes turn a vertical axis. In top of this axis, a string fixed in its center retains at its ends two small equal weights. The ballasted string tends then towards the

horizontal one:



When the engine turns,
the weights rise
whatever the direction of rotation

Then, fifteen aluminium stems, with a U-shaped section, tilted with 45 degrees compared to the vertical, one meter length form a kind of rigid cone. They turn without possibility of rising horizontally.



The principle of the experiment:
a weighing indicates a possible variation of mass of the wheel

(Diagrams: DCU)

Six balances share oscillations due to the fact that in practice, nothing perfectly is centered, balanced: the wheel somewhat tends to make rodeo. They thus return the oscillations of their weaker needles and more precise measurement.

What does it occur? The intuition answers that the tendency of the stems in rotation to

place itself at horizontal does not disappear because they are fixed in a rigid way at their higher end. This tendency would be communicated to the whole of the system coils + axis, which thus is allègerait.

And indeed, that turns. But that does not become lighter. One cannot all have, either: -)

Each point (from where share a vector-force) of the stems inclined moving tends as well as possible in a direction perpendicular to the axis of rotation. The wheel is only one gyroscope with an odd form. That thus does not rise. So that that becomes lighter, it would be necessary that the vector-force point with the top of the horizon. If somebody has an idea…

Flower

A small drop of poetry

A streaming flower of dew opens out in the morning fog. Its movement is almost unperceivable, because it tightens a trap with the Sun. It soon will be closed again on the star, which it will retain like its own heart.

The delicate petals reveal a nest gorged with treasures. Which sun would thus resist such soft foods? Not that there! The star approaches. The flower feels its extreme breath, it is gaining. It deploys all its will, it is exceeded to be made desirable. Droplets with the voluptuous perfume bead in the flashover.

It does not have any more the force to bring back on its heart its spread out petals. But it does not matter now since the Sun does not escape. It is there, very against it. It dries the tears of the flower and the droplets with the voluptuous perfume do not bead any more.

It seems with the flower that the Sun takes it along with him to set ablaze the sky. But the day dies out and the flower dies out with him.

Lianas

Science fiction

Gigantic lianas with slow and powerful movements tangle up in an impenetrable ocean. A diaphanous phosphorescence is irradiated some. A multitude of nodes are tightened, slackened, untied or created in a green fog. Many is perhaps centenaries, because their stem evokes the trunk of very old trees. One of these lianas is twisted suddenly with strength. It has just broken, victim of interlacings to the contrary forces. Its luminescence wavers, then the two pieces of the vegetable reptile are let slip into the inextricable depths.

The emergence of the life

(Image: DCU)

Let us raise the debate: let us tackle basic problems

- **When** we raise the lid of this dish, we will discover a galaxy which will have the appearance of a ragout of sheep.
- It is not ragout of sheep, it is whiting net.
- What do you know some? Are V' z' astronomer?

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The pollutants repress the indecent assault because the sight of our bodies devastated by
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their pollution howls the scandal of their atrocious infamy.

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- **Where** weeding it **Attila** throws itself the grass does not push back any more.
- Million square kilometres of deserts in the world proves the effectiveness of weeding **Attila**.
- Recent scientific discoveries show that the ground Martian comprises traces of weeding **Attila**.
- Weeding **Attila**, it is guaranteed happiness.
- This was an official statement of weeding **Attila**.

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The heavy eyelid subsides heavily. It drops a bead of sweat. The powerful muscles of the thighs and the legs work without slackening. Grftz pedals on funny of bicycle. It does not move. However it pedals since years, since always. Time is shelled without bench mark. Nothing resembles more one second than the second of before and the second according to.
Produced Grftz of electricity.

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Water extinguishes fire. But while placing water in a container and by heating the container, it would seem that the action of water and that of fire combine instead of being opposed. We do not know any more for the moment. We will give you other information as they reach us.

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I lost an electron. If somebody finds it, it is with me.

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Law of Murphy - Lacroix
The more complex one configuration is, the more it is probable that something goes to flunk in little time.

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Ladies, Sirs,
I wrote foolish things on internet and I am with the street. Would you have a luncheon voucher or a coin of currency, please?
I thank you for your generosity and I wish you a good day.

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