

A NEW APPROACH TO THE ORIGINS OF MATTER

by Georges LEBLANC

1. PRELIMINARY CONSIDERATIONS

In the distant past, the Greek philosophers concerned themselves with the matter making up the universe. Four centuries before Jesus Christ, Leucippus developed an atomic theory, wherein the universe is composed of a subtle fluid called "*ether*" in which an infinite number of "*atoms*" of the same indestructible substance comprises matter as it can be seen in its various forms.

Since then, atomic physicists have naturally made considerable progress in understanding the "*increasingly small*". Today, stable matter is generally considered to be an architecture made up of atoms, themselves made up of stable elementary particles: the nucleus, the electron and the positron, to which can be added the graviton and the photon. These last three particles have zero mass.

Experience has shown us that if we place an electron face to face with a positron, they tend to come closer, whereas if we place two electrons (or two positrons) face to face, they have a tendency to move apart. These are electrostatic forces, but how do these particles sense the presence of the other? There is nothing miraculous involved and the electron and positron must emit something smaller than the electron (or positron), something more subtle, to use the words of the Greek philosophers. As the mass of the electron and of the positron remains unchanged, this implies that the emanations from the electron and the positron are compensated by an external contribution. This remains true when the electron and the positron are located in interstellar space, which has zero mass. Interstellar space, designated by the term ether, is thus not empty and occupies an infinite space.

To help understand the origins of matter, this approach is limited to the physics of certain stable elementary particles such as the graviton, the electron, the positron and the photon, which have been modelled in order to simplify this description.

2. THE ELEMENTARY MASSES OF MATTER

Because the emanations from the electron (or the positron) are not particles but infinitely small elements which cannot be analysed, one must postulate the existence of elementary masses. Thus, contrary to the usual way of thinking which runs from the largest to the smaller, the following path must be followed: from the smallest to the larger, with the following basic assumption:

"Matter comprises two types of elementary masses representing the limit of the infinitely small. The name given to these masses is simply (+m) to designate the positive elementary mass and (-m) to designate the negative elementary mass, with which is associated a potential energy e_0 when (-m) has zero velocity".

These elementary masses occupy the ether in equal numbers, the mass of the ether thus being nil.

3. PARTICULARITY OF THE "DUO" ($\pm M$)

If we consider (-m) at rest and (+m) coming into contact with it at very low speed, the (-m) exerts a traction force on the (+m) (Fig. 1). In this process, there is an exchange of energy between the (+m) and the (-m). The (+m) thus acquires kinetic energy e_c equal to the energy lost by the (-m). The exchange of energy ceases when velocity C_0 is reached. The diagram in figure 2 shows that the kinetic energy attained by the (+m) represents half the initial energy e_0 of the (-m), or:

$$e_0 = (+m) \cdot C_0^2$$

At this limit speed C_0 , the energy e_p is nil and no further exchanges are possible between the (+m) and the (-m), their bond becomes non-existent and their velocity cancels out. In other words there are two states in the ether, $v = 0$ and $v = C_0$. The mean quadratic velocity of the ether is thus $vq_0^2 = \frac{1}{2} C_0^2$.

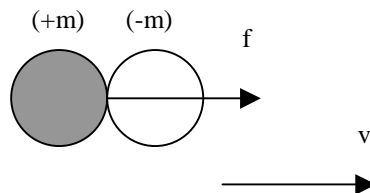


Figure 1

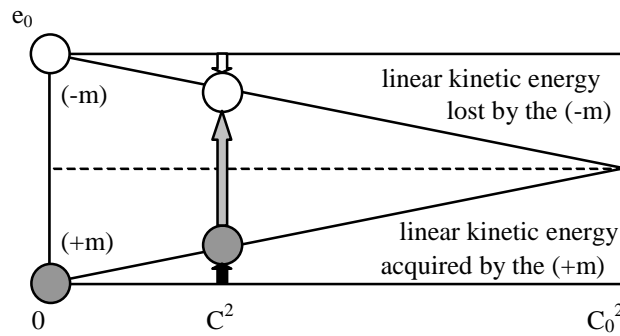


Figure 2

Velocity C_0 , incorrectly called the “speed of light”, constitutes a limit that cannot be exceeded. The speed of light varies with its wavelength, for example visible light at a frequency of $2 \cdot 10^{15}$ Hz moves at a speed C such that:

$$\frac{C^2}{C_0^2} = [1 - 1,05 \cdot 10^{-7}]$$

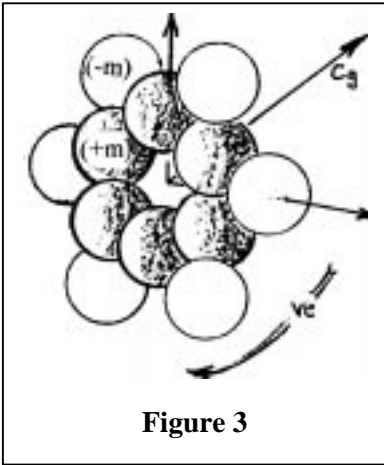
This equation shows why the speed of light is confused with limit speed $C = C_0$, with $C_0 = 299\,792\,500\text{m/s}$

4. THE FORMATION OF MATTER

In their erratic movements, the (+m) and (-m) have formed of stable and unstable particles. The stable particles can be considered as being those which make up matter such as we know it today in its various forms, ranging from particles such as electrons to celestial bodies such as stars. The formation of these heavy celestial bodies, initially extremely slow, consequently led to concentrations of (-m) which could be those objects referred to as "black holes". The universe is thus continuing to form and decay uniformly in this infinite space, this ether.

Albert Einstein demonstrated that a uniform distribution of matter in space conformed to his theory and freely accepted that the universe is static on a large scale [cf. The Evolution of the Universe, in Scientific American Oct. 1994 by P. James, P. Peebles, David N. Schramm, Edwin L. Turner and Richard G. Kron].

5. THE GRAVITON



The graviton is the smallest of the groups ($\pm m$), and passes through all bodies in the universe having positive mass, no matter how small or large (for example, from the electron to the largest star). All positive masses in the universe emit and receive gravitons, with the rate of emission and reception being proportional to their mass. As the mass of the graviton is nil, emission leads to no loss of mass by the emitting body. The model schematically represented by figure 3 represents the smallest group able to meet the stability conditions. Tangential velocity v_e , due to the rotation of the $(-m)$, is that of the ether: $v_e^2 = C_0^2 / 2$.

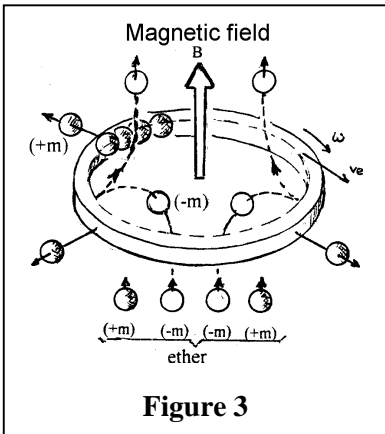
When the gravitons from a mass medium m_1 pass through a mass medium m_2 , their velocities C_g are momentarily reduced. This temporary reduction in velocity leads to a traction force f_g oriented towards the emitting source m_1 . This force is mutually also proportional to m_2 , in other words the product of $m_1 \cdot m_2$, and it is naturally inversely proportional to the square of the distance D between m_1 and m_2 . The usual form given to the force of attraction f_g is:

$$f_g = \frac{m_1 \cdot m_2}{D^2} \cdot G$$

G is the universal constant of gravitation: $G = 6.67 \cdot 10^{-11}$ MKS. The linear velocity of travel C_g of the graviton in the ether is such that:

$$C_g^2 = \frac{1}{2} \cdot C_0^2$$

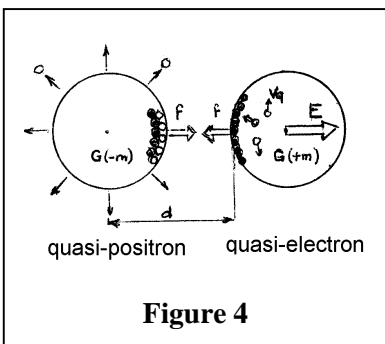
6. THE ELECTRON, THE QUASI-ELECTRON



The electron is the smallest of the stable particles making up the atom. It can be schematically represented (see fig. 4 opposite) by a rotating ring (+m) inside which some (-m), known as "acting (-m)", are given a quadratic velocity vq^2 . Through their impacts on the ring of (+m), the acting (-m) ensure the cohesion of the electron. The electron cannot be spherical, as in this case, the centrifugal forces exerted by the (+m) would be nil at the poles, and the sphere would collapse. The ring configuration is to be found in stable elementary particles such as the positron and the photon. From an electrical viewpoint, the electron charge is negative. The electron emits (+m) radially, and they are replaced by (+m) supplied by the ether.

When the linear travel velocity of the electron is nil, the tangential speed v_e of the (+m) on the outer ring is $v_e = 0.9968.C_0$. The tangential speed of the (+m) creates a magnetic field B physically corresponding to an axial flow of (-m). At the maximum possible linear travel speed, also equal to $0.9968.C_0$, the magnetic field and the peripheral speed cancel out and the electron self-destructs. The mass of the electron is very small when compared with the mass m_e of the (+m), or the mass m_i of the acting (-m). A very slight relative increase Δm_i in the acting (-m) (about $\Delta m_i/m_i = 1/155$), turns the electron into a quasi-electron of zero mass; this particle is observed in the electrostatic fields and in the photon; it can reach a maximum linear velocity very close to C_0 .

7. THE QUASI-POSITRON

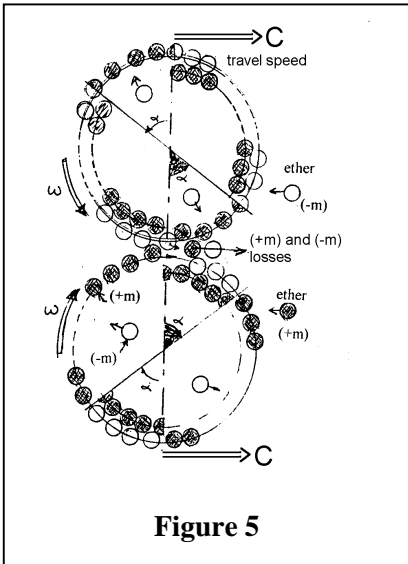


The quasi-positron (see fig. 5 opposite), which is of identical diameter to that of the quasi-electron, consists of an inner ring of (+m) and an outer ring of (-m); the latter guaranteeing the cohesion of the assembly. The number of (+m) is equal to the number of (-m); the mass of the quasi-positron is nil. From the electrical viewpoint, the charge of the quasi-positron is positive.

The quasi-positron radially creates an electrical field E due to the emission of (-m): the (-m) emitted are continually replaced by (-m) and ether. The quasi-positron exerts a traction force f on the quasi-electron and vice-versa.

8. THE PHOTON

The photon is the particle which carries light and its configuration evolves cyclically. In its initial configuration, the photon can be considered as an assembly in the same plane of a quasi-electron, carrying a magnetic field, and a quasi-positron, carrying an electric field. The mass of the photon is nil, and its velocity C of linear travel, contained within the plane of the photon, is close to the limit velocity Co, which is sometimes wrongly called the speed of light (see paragraph 3).



The quasi-electron and the quasi-positron mesh at the angular speed ω, which is considered to be the fundamental parameter of the photon. At the point of contact, the photon releases duos of (+m) and (-m), continually replaced by (+m) and (-m) from the ether. From its initial configuration, when the photon has turned through an angle α, the loss of (+m) and (-m) leads in this α sector to a change in configuration. For example, in the initial quasi-positron, the α sector represents a part of the opposite configuration, that is a part of the quasi-electron. For the photon to be stable in its plane, an α sector identical and opposite to the first one must be created. The kinetic energy of the photon is expressed by the formula $e = \hbar \cdot \omega$. Although it has zero mass, the photon has a quantity of movement p due solely to the mass of the (+m) in the electron outer ring. It is expressed

$$p = \frac{\hbar \cdot \omega \omega}{0,9936 \cdot C_0^2} \approx \sqrt{2} \cdot 10^{-25} \cdot C \quad (\text{MLT}^{-1})$$

(ħ is Planck's constant¹ = 1.05646 10⁻³⁴)

¹ Max Planck (1858-1947), the author of quantum theory, the foundation of modern physics.

9. REMARKS ON THE EXPANSION OF THE UNIVERSE

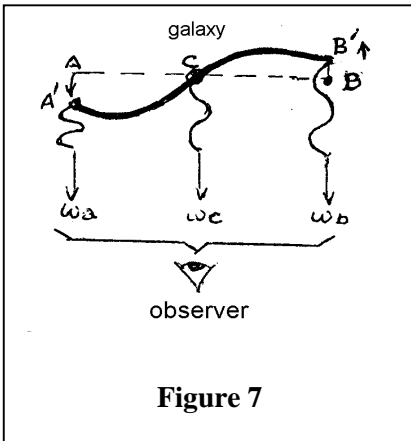


Figure 7

The reception of photons from a galaxy enables an observer to identify the ω_c , ω_a and ω_b pulses emitted by the centre and by stars A and B respectively (see fig. 7) located laterally and symmetrically with respect to C. The energy diagram situates the linear velocity of photon propagation according to their ω_a , ω_c , ω_b pulses and thus according to their propagation velocities V_a , V_c , V_b . Value ω' , the arithmetical mean of ω_a and ω_b (see fig 8) is less than ω_c relative to the centre of the galaxy and has no physical significance. The

difference between ω' and ω_c has in the past sometimes been erroneously referred to as "red shift". Naturally, this so-called "red shift" does not prove that the galaxy is moving receding.

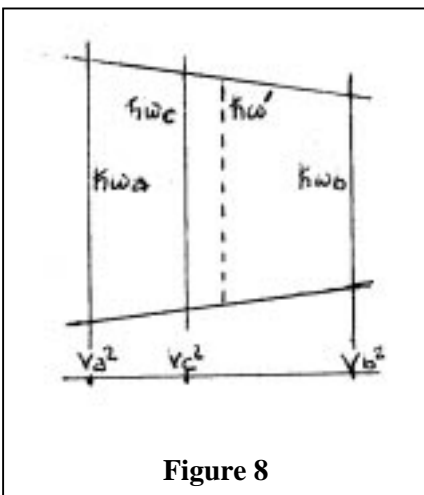


Figure 8

To conclude, observation of a galaxy can in no way prove that the universe is expanding. However, observing that there is no expansion conforms to the notion of an infinite space occupied by the ether, which contains the stars (see paragraph 4 The Formation of Matter).

March, 1999

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