FPRINT-92-10

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OUR CONCEPTION OF THE UNIVERSE AND RELATIVITY THEORY, ETC.

by J. Papadakis
of the Academy of ~~Athens~~ Nonsense

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Η εκτύπωση τέλειωσε στις 20-1-1992 στο Τυπογραφείο:
ΓΡΑΦΙΚΕΣ ΤΕΧΝΕΣ ΓΙΩΡΓΟΣ ΠΑΠΑΝΙΚΟΛΑΟΥ, ΙΠΠΟΚΡΑΤΟΥΣ 71,
106 80 Αθήνα, ΤΗΛ. 3624.728 - -3609.342, FAX: 3601.679

14. STATISTICS VERSUS CAUSE-EFFECT SCIENCE

There are two ways to understand the universe, and take decisions. One is by studying the laws of nature, how the universe is functionning. The other by studying what happens and determiing the frequency of different facts. Both are very old. Man had always the curiosity to understand how the universe is working, and he was profiting of such knowledge. On the other hand he was observing facts and studying their frequency.

The two ways complete one another; familiarity with a process facilitates its understanding. On the other hand knowledge of the processes of some phenomena facilitates their statistical study.

However in this case also specialization has its side effects; too often cause-effect scientists do not know sufficiently about the frequency of the facts they are studying; and many statisticians do not know sufficiently about the mechanism of the phenomena, whose statistics they are studying.

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OUR CONCEPTION OF THE UNIVERSE AND RELATIVITY THEORY, ETC.

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SUMMARY

(numbers show paragraphs)

1. We ow our conception of the universe to Newton and other scientists. But some fundamental concepts, as those of universal time, universal measure of lengths, infinite space, eternal time, were existing since much older tin.es; and they were almost universally accepted. 2. Light is formed of a succession of photons; the energy of a photon is equal to vh; v is the frequency of light and h the unit of energy (h); v varies from a few units to approximately 10^{24}. Since energy and mass increase in the same proportion, light velocity in vacuo is always the same, 300.000 km/s; in denser media it is lower, because of the resistance of the medium. It may be photons require time to reach velocity c after their emission from the light source, or reflexion by a mirror. The wave theory is due to a misinterpretation of the phenomena of interference and diffraction. 3. In the case of material objects the velocity of the frame, v, is added to that of the object, v_o; that compensates the increase of distance, due to the motion of the frame, and the velocity of the object can be measured in whatever frame, it is equal. But light velocity is not affected by that of the light source, there is not such compensation, and light apparent velocity should vary according to direction. 4. Because of that we should not confound lengths with distances; in the case of light, the distance to cover increases in one direction, and decreases in the opposite one; but the length of objects is not affected; the conclusion of relativists, that objects contract and time dilates, is due to this confusion; objects do not contract, time may change, because the distance to cover changes. 5. The velocity of a photon does not increase or decrease with the velocity of the light source, or mirror; but its frequency changes, and the law of energy conservation is confirmed. 6. In Michelson experiment time has not been measured separately in the WE and EW directions; this fact reduced 26 times the accuracy of the experiment; moreover time has not been measured with a clock, but indirectly; the fact that light may require time to be reflected and change its velocity, from v to c, or from -v to c, has not been taken in consideration; the distance between mirrors was approximately 2 m.; the experiment has seldom be repeated; and the few repetitions have the original defects; it urges to repeat the experiment with a distance of 50 km. f.i.; measure separately the time in the WE and EW directions, with a clock; and carry out an experiment, to determine, if repeated reflexions at short distance, do not reduce light velocity (fig. 2). However on the basis of such an

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experiment our conception of the universe has been challenged. The pretended contraction of bodies is due to a confusion of lengths with distances. Moreover the dimensions and shape of an object are due to physical, chemical and biological processes, which act independently of orientation, and require considerable time; it is difficult to believe, that in a fraction of a second, a simple change of orientation, of a rock or an animal, can change their shape, from thin and long to gross and short or vice versa. Finally an increase of distance may increase the time light requires to cover it, but not dilate universal time. It is naturally curious, that so many physicists accepted the theory. But that is due to the fact that relativism is a theory, that many profess, few understand, and almost nobody applies. 7. The mass of a body increases with its velocity, because energy is accumulated in it, and energy has a mass. So that the mass and weight of a body depend on its velocity; such velocity could not naturally be a relative velocity, which can be choosed at will; it should be an absolute velocity; so that absolute velocities exist, and their existence implies that of universal time, and a universal measure of intervals. Doppler effect shows the same; the frequency of the light emitted depends on the velocity of the light source; such velocity cannot naturally be relative; it should be absolute; consequently absolute velocities exist; and the existence of absolute velocities implies that of universal time and a universal measure of lengths. 8. Parallelism exists; two straight lines prolonged indefinitely can neither converge nor diverge; consequently Euclid is right, and non-Euclidean geometry is not necessary, although it may be a big intellectual accomplishment. 9. Newton is right; forces have not material existence; as long as the object to which they are applied does not move, or suffer some deformation; gravitation does not require particles (gravitons) to be transmited from one body to another; fields are only conceptual; they show the spatial distribution of the forces of attraction; like forces they have not material existence; all that are remnants of ether theory of Maxwell epoch; and it is time to revise them; the energy used, when a body moves, attracted by another body, is probably a remmant of the energy, that dispersed the universe in very old times. 10. A cause may have more than one different effects, each one with its probability; that is why the march of events is not predetermined; chance intervenes continuously; there is not an implacable destiny. 11. There are different kinds of energy, kinetic, caloric, electric, etc., in addition to radiation and particular radiation; physicists have an enormous research to do, studying their peculiarities, effects, etc. 12. Radiation and particular radiation are difficult to study; because of the size of particles and their small mass, they are more exposed to random influences; moreover, according to Heisenberg, the scientist enters often as actor in the fact he is studying. This fact has conduced several scientists to believe, that Newton physics do not apply in this case, and to create a separate science, quanta mechanics; it seems to me, that a better study of the discrepancies will show, that they do not exist. 13. Natural laws are simple; and that permits to explain them with few mathematics. But many facts of every day life are very complexe; models and computers help to study them. But marvelled by them, many scientists neglect to study the mechanism of the phenomena they are studying; we should not forget something the great biometrist Johannsen has said "mit mathematik nicht als mathematik treiben wir unsere studien". Scientific development and technologic explosion have been very

13. MATHEMATICS, MODELS, COMPUTERS, ETC.

It may seem curious, that in a discussion of our conception of the universe, and relativity theory, we use so little mathematics. But the laws of nature are simple. Facts are often complex, because factors studied by different sciences intervene, and to unravel all that, and arrive to a precise solution of a problem, mathematics, models, computers, etc. help much.

But marvelled by mathematics, models, computers, etc., many scientists do not think sufficiently on the problem they have to solve. Moreover, exaggerated specialization impedes them to see some aspects of the problem. And in spite of mathematics, models, computers, etc., they sometimes arrive to erroneous conclusions.

To turn the difficulty teams of different specialists are formed. But that aggravates the consequences of specialization; each one abstains to take into consideration aspects of the problem, for which other specialists are more competent. And nobody has a global conception of the question. Moreover, to avoid conflicts, each one should examine the problems from the point of view of his speciality. Afortunately in private enterprises, the management pays often more attention to the personality of the scientist, than to conventional qualifications; but private enterprise is seldom interested in pure science.

Models, computers, multidisciplinary teams etc. are naturally indispensable, and we owe much to them. The error is to consider them as infallible, and to adopt an opinion, because the majority sustains it, or "master dixit". Mathematics have lost much of their prestige, because of these practices. Mathematics and logic complete one another as "organon" of science; logic is indispensable in fundamental questions; but mathematics permit to arrive to a precise solution; to underestimate logic, and no think sufficiently on a problem, confying too much to thinking machines, has damaged much both science and thinking machines, whose development would be more rapid, if they were used more critically.

Reductio ad absurdum is seldom used; and that conduces to wrong conclusions. For instance, observations, and interpretations may be erroneous, but a fact not; it is the truth we are searching, and it cannot have contradictory versions. Rlativists sustain, that two facts may be simultaneous for one abserver, and not simultaneous for another observer; the two observers can have seen the fact at different moments; they can have calculated erroneously the time at which the fact has taken place; but the fact has taken place at a definite moment. Relativists sustain, that a twin may be in the same time older and younger than another twin; that the velocity of a frame of reference can be in the same time higher and lower than that of another frame, and the same happens with the length of an object, etc.; that cannot be. According to quanta mechanics a corpuscle can go from a place to another, without passing from intormediate points; it can be in the same time at two different places; that cannot be.

A revision of mathematics is needed to avoid such conclusions. An excellent field of research for mathematicians, and physicists. See also the paragraphs of relativity theory, fields, and quanta mechanics.

probability; and to predict the future is harardous; knowledge of the laws of nature — including those which rule social phenomena — and statistics help to foresee the scenarios with their probabilities; but even that is often difficult, because of the complexity of the phenomena.

11. KINDS OF ENERGY

Matter and energy are convertible to one another, and their sum cannot increase or decrease (conservation law). There are different kinds of matter (a variety of atoms, etc.) and different kinds of energy (kinetic, caloric, radiation, electric, etc.). Moving bodies consist usually chiefly of matter; but they contain also some kinetic, caloric, etc. energy, which increases their mass; their velocity, temperature, etc. depends on the relation between their mass and kinetic caloric, etc, energy. True radiation consists exclusively of energy, and that is why its absolute velocity (in universal time and lengths) is always c. There are also bodies, which are formed chiefly but not exclusively of energy; they are callled "particular radiation"; their velocities are naturally lower than c; their life is often short.

The study of kinds of matter is old, and it advanced much. We know an enormous variety of atoms, molecules, etc. The study of the kinds of energy began later and has not much advanced. We know still very little. Physicists have a splendid work to do.

12. QUANTA MECHANICS

As we have said, there are corpuscles, which in addition to energy contain some quantity of matter; they are called "particular radiation"; many of them have a very short life; and therefore they have been less studied than matter and radiation; they are often fragments of other more stable particles.

Classical physics apply to both matter and radiation. Photons have a very small mass, and that exposes them more to very week forces; moreover the indivisibility of a simple quantum make that, in Doppler effect f.i., the physical law cannot be applied exactly in each reflexion, and random intervenes.

Particular radiation also consists of small corpuscles, and what happens with radiation happens also with paritcular radiation. Moreover velocities are lower, and corpuscles are more subject to gravitation forces; such forces are not so weak, because distances are minimal; and the complexity of gravitation forces acting on a corpuscle is so great, that we may consider them as random forces. All that conduced some physicists to make a distinction between quantum and classical mechanics. But we may consider the discrepancies between classical and quantum mechanics as apparent. A revision of quantum mechanics is needed.

According to Heisenberg the scientist is as much an "actor" as a "spectator" in scientific inquiry; and that is true in the case of radiation and "particular" radiation corpuscles; the scientist influences the result of the observation; and that should be taken into consideration, in the interpretation. Several peculiarities of quantum mechanics, are due to that, and to the indivisibility of h.

rapid during the 20th century. Scientists had not time to adapt themselves to the situation; and science entered in a crisis. 14. Cause - effect science and statistics attack the problems from two different points, beginning and end, and complete one another; but each one should not ignore, what the other is thinking and doing. Specialization is necessary, but dangerous; it should be combined with a concise knowledge of fundamental science.

I. INTRODUCTION

Until recently our conception of the universe, based chiefly on Newton physics, was simple. An object could be longer, equal or shorter than another object; the same unit, or a multiple of it could serve to measure whatever object, in whatever direction, length, width, depht. A fact could be anterior, simultaneous or posterior to whatever other fact; all facts could be arranged in one line, according to the time in which they took place. Matter and energy had neither a beginning, nor an end; space was seeming illimited, and time eternal. And such conception of the universe continues to be the exclusive basis of our technology. Even the travel to the moon has been done, applying exclusively Newton physics.

But now relativists sustain, that an object can be, in the same time longer and shorter than another object; a fact can be, in the same time, anterior, simultaneous, or posterior to another fact. Afortunately they affirm, that happens only, when the frame of reference, in which these objects are encountered, or the facts take place, move with a velocity comparable to that of light, while the Earth rotates with a velocity 10,000 times lower. Therefore relativity theory is something, that several people accept, fewer understand, and nobody applies.

Exceptionally a few scientists, working with particle accelerators, pretend to have observed facts that confirm relativity theory. But a better examen shows, that they have nothing to do with relativity theory. Many facts, that are called relativistic, f.i. convertibility of mass to energy, "relativistic" mass, quanta, etc. have nothing to do with relativity theory.

All that contributes to the scientific crisis of our days. Technology advances nourished by the science of 19th century, which may be considered as the golden age of science, for the fundamental discoveries, that have been done during it. We should all contribute to terminate with this crisis.

2. PHOTONS, THEIR ENERGY AND VELOCITY

No confound greek v (frequency) wit latin v= velocity.

Light is a sequence of photons; photons are packets of quanta of energy (h); there are vh per photon, but no matter. And since the mass of a photon is also vh, all photons have the same velocity c, which is 300.000 km/s in vacuo. In more dense media it is lower, because of the resistance of the medium.

Light velocity is considered as a universal constant. But what is really a

universal constant is c^2, the number of units of energy per unit of matter. In usual units 1 gram of matter is equivalent to 9.10^{13} joules.

The motion of photons is rectilinear. But all bodies oscillate in their motion; and the amplitude of such oscillation decreases as their mass increases (de Broglie); that is why in big particles it becomes imperceptible. The theoriy of waves has this origin. But in a wave, particles (water, air, etc.) oscillate remaining in the same place; and the force is external (wind, etc.). In the case of light the particles (photons) move at enormous distances; and the force that produces the motion is not external, but internal. The wave theory is due to a misinterpretation of interference and diffraction phenomena. In coherent light the emission of photons is intermittent, with a periodicity of 1/v second; and they advance concentrated in points distant 1 wave length; an excellent theme for physicists and mathematicians. Holography also is due to this fact.

Lateral motion of light might be also due to an extension of its spin motion.

It may be photons require time to reach velocity c, when leaving the light source or mirror. The question is important, and I have recommended an experiment to elucidate it (fig. 1).

Curiously enough the convertibility of matter to energy is often attributed to relativity theory. But Newton, with his corpuscular theory of light had anticipated it; and Planck discovered the indivisibility of the unit of energy(h).

3. CONTRARY TO WHAT HAPPENS WITH MATERIAL OBJECTS, THE VELOCITY OF LIGHT IS NOT AFFECTED BY THAT OF THE LIGHT SOURCE OR MIRROR

When an object, a car for instance, moves in a frame of reference, f.i. the Earth, its real velocity (that measured in a frame at absolute rest) is equal to v_o+v; v_o is the velocity of the car measured in Earth, and v the velocity of the Earth in the same direction. So that the real velocity of a car, and whatever other material object, increases or decreases with the velocity of the frame of reference, in which it is moving; but that measured in a frame of reference at rest, does not differ from frame to frame.

The case of light and whatever other radiation is different. The real velocity is always c; that measured in a frame of reference c-v; v is the celocity of the light source or mirror, in the direction of light. But since v is very low compared to c, the velocity of light is practically c in all frames.

4. WE SHOULD NOT CONFOUND LENGTHS WITH DISTANCES

When an object moves in a certain frame of reference, in a given direction, its real velocity (that in a frame at rest) is equal to the velocity of the object v_o, plus the velocity of the frame in the same direction, v. In time t the distance covered is $(v_o+v)t$. But in time t the target of the motion has also advanced, due to the motion of the frame, by tv; so that the distance covered measured in the frame is equal to $(v_o+v)t-vt=v_ot$. So that v_o can be measured in whatever frame; it is not

Relativity theory gives us the image of a world that differs form that, in what we are living; there is not, neither universal time, nor a universal unit to measure space coordinates. To study such world with Euclidean geometry would be difficult. That is why non-Euclidean geometry developed much recently with the diffusion of relativity theory.

Space and time are two different concepts, and they exist in all languages; we cannot consider time as merely a fourth coordinate of space; it differs substantially from the other three. We encounter many relics of the past, but none of the future.

9. FIELDS, GRAVITATION

According to classical mechanics forces are only conceptual. Only their causes (pressure, etc.) and their effects (motion, etc.) are real. A field shows the spatial distribution of forces; and it is only conceptual.

But electromagnetic induction has several similarities with gravitation. In 19th century the theory of ether was generally accepted. And Maxwell (1831-1879) formulated an electromagnetic theory, based on the assumption that all space is pervaded by an ether, which can be electically polarized. In the beginning of 20th century Einstein proposed to abandon the ether theory, but Maxwell field theory survived that of ether.

To admit, that gravitational attraction is transmitted by particles (gravitons) seems illogical. Such particles should be emitted continnously, since immemorial times and would create a big problem from a matter-energy conservation point of view. Moreover everything shows, that the attraction is transmitted instantaneously. Again Newton was right 3 centuries ago.

What is the energy, that moves objects, when attracted by gravitation? It may be a remnant of the energy, that launched bodies to empty space, in very old times (Papadakis 1988). Such energy could be used only in the case of gravitational attraction.

10. POLYDETERMINISM

According to Laplace every cause has one only effect; and according to this geneally adopted idea, everything is predetermined by an implacable destiny. History is a film that has been filmed immemorial times ago, and it is little by little projected, without any modification.

But Mendel, the father of the science of heredity, has shown, that an autogamous pea, if heterozygous, can have a variety of descendants, each type with its own probability. So that history, instead of following a predetermined unique road, is frequently encountered in a crossroad; and it follows one of the roads, determined by chance, according to its probability (Papadakis 1990).

So that to anticipate the future is a probabilistic problem. Naturally there are also mono-deterministic problems, whose solution is known; technology is based on that. But usually there are several different scenarios, each one with its

Many people sustain that we are living in an era of decadense, like that of the decadence of Roman empire; amoralism, politcal and social decay, etc. But it may be, scientific and technologic progress, with their social consequenses, has been very rapid. And all that is a symptom of rapid growth.

See also paragraph 7.

7. THE INCREASE OF MASS WITH VELOCITY AND DOPPLER EFFECT SHOW, THAT TIME AND LENGTHS CANNOT BE RELATIVE

It is long ago known, that when the velocity of an object increases, its mass increases, and such increase of mass increases with the square of the velocity of the object. On the other hand Doppler effect is long ago known; the frequency of the light emitted by a light source depends on the velocity with which the source is moving in the direction of light.

But obviously the mass of an object, or the frequency of the light emitted by a light source, cannot depend on relative velocites, which vary according to the term of comparison. That implies the existence of an absolute velocity on which the mass of a moving object, or Doppler effect, depends. And the existence of an absolute velocity, implies that of absolute lengths, and absolute time (Papadakis 1979). We can even calculate absolute velocity, mass at zero velocity, or the frequency of the light emitted at zero velocity, taking as a basis whatever frame.

It is curious, that the mass of a body, when its increase with velocity has been taken into consideration, is often called relativistic; but it is a consequence of Newton's physics. According to Newton photons are corpuscles; consequently they have a mass; matter and energy are two kinds of the same thing, and convertible to one another; according to Newton a moving body accumulates energy; and its mass should increase. So that relativity theory has nothing to do with increase of mass with velocity. On the contrary the increase of mass with velocity shows that universal time and a universal measure of lengths exist.

It happens the same with many other "proofs" of relativity theory. Usually they have nothing to do with it.

8. NON-EUCLIDEAN GEOMETRY

Everything shows, that space is infinite. Nobody has proved, that parallele lines, when prolonged, should always converge or diverge. So that the Euclidean conception of the world is sufficient to understand it. We do not need hyperbolic or elliptic geometry; when prolonged, two lines may diverge or converge; but that does not happen always. Universal practice has also shown, that we can use the same units to measure lengths, time, and mass everywhere.

Naturally we may imagine, a world which has limits, and in which two lines converge or diverge always when sufficiently prolonged. And that may be a great achievement, needing high mathematics. But that would be a fiction, not science.

affected by v.

But in the case of light,the velocities of the frame and that of the object are not added, such addition is replaced by Doppler effect, which has exactly the same effect from an energy conservation point of view. Radiation covers a distance that measured in the frame is t (c-v).

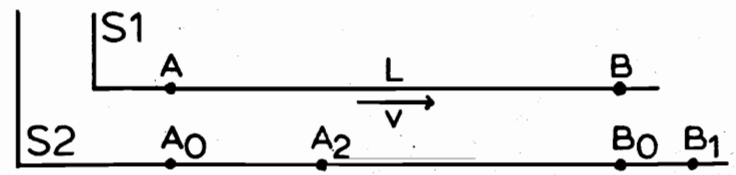

Fig. 1. We should not confound lengths with distances. S1 is a frame of reference, which moves with velocity v; and S2 another frame, at rest. *Light is emitted from A reflected in B, and returns to A. At the moment light is emitted from A point A is projected to A_0 and point B to B_0. At the time light is reflected at B point B is projected to B_1; and at the time light returns to A, point A is projected to A_2. Distance AB is covered by light with a velocity c-v, in time L/(c-v); A_0B_1 = L/(c-v). Distance B_1A_2 is covered by light with velocity c+v, in time L/(c+v); B_1A_2 = L/(c+v). Distance L increased in one direction and decreased in the other; the increase and decrease are not equal, the increase is a little greater than the decrease. So that distances; projected in a frame at rest, "absolute" distances, and consequently the times light requires to cover them, increase or decrease according to direction, and we should not confound lengths with distances. We should also no confound "absolute" velocity (in a frame at rest) with "apparent" velocity in a frame in motion. But for material objects they are equal, and absolute velocity can be measured in whatever frame (Papadakis 1985).*

This difference between objects of a certain size and radiation obliges to make a difference between "length" and "distance". Length is the interval between the positions of two points at the same moment; it can be measured in the frame, in which the two points are situated without difficulty. Distance is the interval between the positions in space of a moving object at the moment the object passes in front of it, and the position of the same moving object some time later, when the moving body passes in front of it; to measure it we should project the movement in a frame of reference with velocity zero in the direction of the motion.

In the case of radiation "length" and "distance" differ, and we should take that in consideration; but in the case of bigger objects there is not difference. And that is why the two terms are often confounded, and that conduces to errors, among them relativity theory (see paragraph 6).

5. DOPPLER EFFECT

Light velocity is not affected by that or the light source or mirror. But what happens with the principle of energy conservation? The frequency of light increases or decreases, according to the velocity of the light source or mirror. And the change of frequency makes, that no energy is lost or gained. This fact, named Doppler effect, has long ago been discovered by Doppler, and it is used extensively in radars, to measure the velocity of the objects observed.

Naturally no Doppler effect is observed, when the distance between the radar and the object neither increases nor decreases.

However the fact, that Doppler effect is a consequence of energy conservation, is seldom emphasized. The light source looses energy, when it emits light; and such loss is greater when the light is in the direction the light source is moving, than in the opposite direction. When a mirror reflects light, there is gain or loss of energy that changes the frequency of reflected light; the gain is positive when the mirror approaches the light source, and negative in the opposite case. Moreover there may be absorption of energy by the mirror.

With Doppler effect light velocity does not change, but its frequency (energy) changes.-

6. MICHELSON EXPERIMENT. RELATIVITY THEORY

In 19th century the corpuscular theory of Nelson had been rejected; light was considered as waves of a medium, pervading all space, the ether, acting as the water does in the case of sea waves. But it was thought, that the Earth, in its rotation, may draw with it the ether, and affect light velocity. To decide this question Michelson and Morley carried out their famous experiment in 1881.

As we have said in paragraph 3, light velocity is not affected by that of the light source, and consequently light relative velocity on Earth should vary in EWE directions from c-v to c+v, and be c in the NSN directions; c is the absolute velocity of light, that in a frame at rest, 300.000 km/s, and that of Earth's rotation 30 km/s. So that light velocity should vary, approximately, from 299.970 to 300.030 km/s in the ENE directions to practically 300.000 in the NSN directions. The corresponding times would vary, approximately in a distance of 2 m., from $0.66673/10^5$ to $0.66660/10^5$ and $0.66667/10^5$ seconds.

But Michelson has not measured separately the times needed for the EW and WE travels. By so doing the difference to detect has been reduced 26 times.

Moreover the distance between mirrors was approximately 2 m. And naturally the accuracy of the experiment decreases lineally with the distance between mirrors; to compensate that, repeated reflexions have been used. But light may require time to be reflected, and change its velocity from v to c, or from -v to c; in addition the change differs according to direction.

Finally time has not been measured directly with a clock. In summary the difference to detect has been minimized; and no difference has been detected.

The interpretation of the experiment by Fitzgerald and Lorenz is also based on the assumption, that light does not require time to be reflected and change its velocity from +v, or -v, to c. Such time could compensate the difference in velocities according to direction. To dilucidate this question I have proposed an

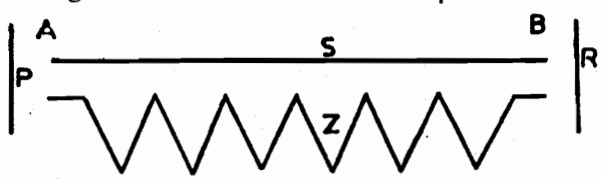

Fig. 2. Experimental apparatus to compare light velocity between 2 poins A and B in a straight trajectory S, and in a zigzag trajectory with successive reflexions Z. P is a rapidly moving tape with adequately distanciated apertures; it gives light signals; R is a tape with the same velocity to receive the signals; it should have a high resolving power. Reflexions are obtained with mirrors. From Papadakis (1989a) "Experimental Apparatus for Fundamental Research in Physics".

experiment (Papadakis 1989), see fig. 2.

Moreover Fitzgerald and Lorenz, in interpreting the experiment, have not taken in consideration the effects of gravitation. As we have said in paragraph 2, photons have a mass, and they are affected by gravitation; gravitation tends to reduce a little light velocities on Earth surface.

In spite of all that Fitzgerald and Lorenz concluded, that when the velocity of a frame of reference increases, objects contract in the direction of the motion, and time dilates (Lorenz transformations).

That when a frame of reference, f.i. the Earth, is moving, absolute distances (those measured in a frame at rest) change, and that may also change the time light needs to cover them, is certain (see fig. 1). But we should not confound "distances" with "lengths"; see paragraph 4.

Moreover the dimensions of an object and its shape are determined by physical, chemical and biological processes, which do not depend on its orientation; almost all animals are long and mince; for biological causes (genes); I do not think, that if we place them in a spacecraft with high velocity the shape of their body will become short and gross, or vice versa. The shape of many minerals on the other hand is very difficult to change. How it will change, in a fraction of a second, due to a change of orientation in the frame, and change each time this orientation changes?

Concerning time dilation, when a frame of reference, f.i. the Earth, is moving in one direction, distances, in this direction, increase, or decrease, and the time light requires to cover them may dilate or shorten. But that does not mean that universal time, which is based on absolute light velocity, c, changes. It is not time that dilates, but the distance, that increases or decreases.

Curiously enough, in 1905, the eminent physicist. Einstein, who contributed enormously to the science of physics, and has received in 1921 the Nobel price for his discovery of the law of the photoelectric effect, adopted Fitzgerald and Lorenz interpretation; and relativity theory is now professed by the majority of physicists. And later Einstein formulated his general theory of relativity.

The rapid and extensive adoption of relativity theory may be attributed to several causes. The scientific and technologic explosion of our times is due to the use of experiment, our science might be called "experimental". Relativity theory is exaggerated empiricism. Exaggerated specialization has certainly helped. Sensationalism too.

But the most important cause, is that the scientists, who are working with velocities approaching that of light are an insignificant minority; all the others apply exclusively classical mechanics; the travel to the moon has been done applying exclusively classical mechanics; so that very few scientists have the opportunity to check relativity theory.

Another cause may be "magister dixit"; scientists do not venture to challenge what their professors sustain, and is written in text-books. Moreover to believe and sustain something sensational, even without understanding it, rises the scientific status. Something analogous is observed in art. Many artists began with classical art; but they were not selling their work; and they shifted to modern art, easier to do, and to sell.