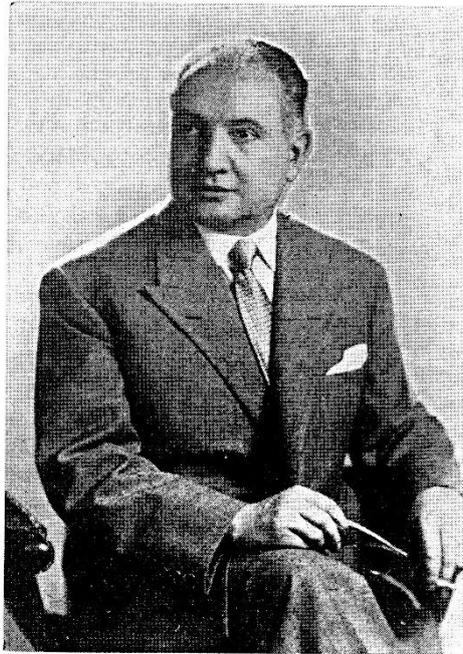


**PROF. DR. ING.**

**MARCO TODESCHINI**

**SHORT BIOGRAPHY**  
**and compendium of his**  
**"THEORY OF APPEARANCE"**



by

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"Amici di Marco Todeschini"

## MARCO TODESCHINI (1899+1988)

Italian scientist born at Valsecca in Bergamo. He served in the 1915-18 war as reserve Lieutenant Army Engineer and Aircraft Pilot. Demobilized at the end of the war, he obtained the degree of Doctor in electrical engineering at the Polytechnic University of Turin. He frequented postuniversity courses specializing in various branches of physics and biology, gaining the relative diplomas of Professor.

Nominated Captain in the regular Army, he served at the Study and Research Division of the Military Engineers and in the well equipped laboratory of this State Organization, he carried out many inventions and he compiled a classical series of theoretical and experimental researches, succeeding in finding the modalities with which the physical, biological and psychological phenomena are developed and connected. Of these phenomena he determined the precise mathematical relations reciprocal and as a whole, coordinating and including them all in a unitary cosmic science, mother of all, called therefore: « PSYCHOBIOPHYSICS ».

Twice promoted for scientific merits till to the rank of Colonel, he was nominated 1° grade Principal Professor of rational mechanics and electronics at the Biannual Perfection Course for High Level Engineering of the Technical Service of Military Engineers at Rome, where he was university professor, collaborator with Marconi and Levi-Civita.

In 1947 he returned to Bergamo to dedicate himself completely to the researches and publications concerning the universal science discovered and elaborated by him, which had a world echo and has been judged to be of exceptional value, because it achieved 9 aims which for centuries had been tried in vain:

1) — *He found and described the series of tests on the optical transmissions, which give the experimental certainty that space in every point of the Universe is not empty, because it acts like a fluid material, mobile and dynamically active having a density  $10^{20}$  times less than water.*

2) — *With these tests he found that fluid space has movements of rotation and revolution around the astronomical masses, which conciliates and explains the result of Michelson's experiments and deviations of the rays that come to us from the stars in harmony with the general validity of Galilei's relativity which implicates and confirms that the speed of light varies in accordance with that of the references' system.*

3) — *He demonstrates mathematically and experimentally that the Universe is made of fluid space only the whirls of which form the atomical and astronomical systems, these appear to us like material with its encircled fields of attraction forces ; the oscillations of the fluid space instead, according to their frequencies, appear to us like different qualities of radiating energy. (Monosubstantiality of the physical world).*

4) — *He identifies the different energetic fields of physics in the single fluid dynamic field showing that all natural phenomena exclusively consist in special movements of fluid space ruled by only one mathematical equation. (Uniphenomenic principle of objective world).*

5) — *He reveals how such movements when they hit against the sense organs of the human body, provoke in these currents of electrons, which transmitted along the nervous lines to the brain, cause in the psyche, and only in it, the sensation of light, heat, electricity, force, sound, odour, taste, etc. {Psychogenesis of the sensitive qualities}.*

6) — *He discovers the marvellous electronic technology of all the organs of sensation, of motion and regulation of the peripheral, middle and central nervous system, determinating the action and reaction that explicate between material of the objective physical world, the human body and the psyche.*

7) — *He determines the 10 equations of correspondance between the deceleration of the matter against our human body and the various feelings arisen in our psyche, revealing that it is not only the force  $F$  which is equal to the product of mass and acceleration ( $F = m a$ ), but also all the aforesaid other sensatons  $S$ , which are equivalent to this product ( $S = m a$ ). (Principle of psychobiophysic equivalence).*

8) — *Fundamental characteristic of this unitary science is having found the theoretical and experimental demonstrations in the mathematical, physical, philosophical and neurological field that the displays of light, electricity, heat, sound, odour, taste, force, etc. are not to be found either in the objective world {where they have for physical reality only unidirectionnal or alternate movements of fluid space, or in the sensorial organs and in the nervous lines of the observing subject ,where they have for neurological reality only a very rapid sucession of collisions between running electrons and atoms. Such displays, non existant in the objective and subjective world, lasting in us for a period of time without occupying space, are without volumetrical matherial consistence; they are the specific sensations given to us by the various intensities and frequencies of material collisions extending from the objective world to the brain organs; they are spiritual sensations that therefore rise and are to be found only in our psyche which also is inextended and immaterial. Therefore: sensations, voluntary movements, memory, thought, reason, understanding are the direct experimental proof of the existence in us of a psyche of spiritual nature, that identifies therefore with the human soul. So for the first time, have been determined, with the severe Galilei's method, the direct and measurable manifestations of a Spiritual Being: our own, the same that Religion claims the existence through faith since millenniums.*

9) — *From the experimental fact that the forces are immaterial sensations that rise in our psyche when the matter decelerates against our body and that these are also dynamic property with which the psyche can move our hands in order to give an acceleration to surrounding bodies, derives the certainty that the forces can be perceived and emitted only by Spiritual Beings. From*

*the experimental fact that our soul can emit only weak forces, derives the certainty that the large force that move the masses of the Universe, can only come from an Almighty Spiritual Entity.*

*Consequently the particular movements of fluide space in which all phenomena of the Universe are identified, are made by immaterial forces that come from the spiritual World and from God, whose existence is so proved with all the good material and spiritual consequences that such scientific certainties can give to mankind.*

This unitary science has been judged the most clear, coherent, vast and organic cosmic synthesis possible in our times. Tried on the sure testing benches of the Universe, its reliability has resulted unquestionable for the following double series of actual confirmations: A) From the single equation of space-dynamic on which it is based, have been deduced all the laws regarding nuclear and atomic physics, chemistry, optics, acoustics, electromagnetism, thermodynamics, astronomy, and the relations between waves and corpuscles; these laws, deduced for the first time by classic dynamics following the chain of cause and effects, correspond with all those laws deduced empirically in the various branches of science, and to the new relations which explain the physic signification of phenomena till now mysterious. B) From his conceptions hundreds of praticai applications have been deduced both in the medical and in the physic field confirming it in its parts and in its marvellous ensemble.

Therefore in Europe and in America « Psychobiophysics » faculties have been founded, and its principles have been introduced in the books now used in Universities and in High Schools; scientists have exposed it in thousands of articles in newspapers, magazines, books, in radio and television lectures, in physics or medical International Congresses.

Todeschini has been nominated Honory President, Vice President and Member of 25 Academies and Scientific Societies both italian and foreign; Knight Offr. of the italian Cr., and Knight Offr. of « Merits of the Italian Republic ».

For the wide, new and decisive contribution brought to all branches of sciences with his physic and neurology experiments and with the unitary cosmic science discovered by him, he has been recently proposed for the Nobel Prize.

Therefore his life and his works have been cited in various encyclopedias, among which: «Who's Who in Europe». Dizionario delle personalità europee, Mayer. Ed. Feniks 1966, Bruxelles, pag. 2642 - «Grande Dizionario Enciclopedico» - Fedele, Ed. UTET 1961, Torino, vol. XII - «Dizionario Generale di Cultura» - Brunacci, Ed. SEI, 1958, Torino - «Storia di Bergamo e dei Bergamaschi», Belotti, Ed. Bolis 1959, Bergamo, vol. VI - «Miscellanea Franciscana», Ed. Pontificia Facoltà di Teologia F. M., 1951, Roma, vol. LI - Enciclopedia degli Italiani illustri: «Lui chi è?» - Ed. E.T. 1971, Torino, Vol.

II - «Dictionary of International Biography» - Ed. I.B.C. Cambridge CB2-3QP, England, 1974, Vol. II.

His principal publications are:

- [1] - LA TEORIA DELLE APPARENZE - pagg. 1000
- [2] - PSICOBIOFISICA - pagg. 550
- [3] - QUAL'E' LA CHIAVE DELL'UNIVERSO - pagg. 208
- [4] - L'UNIFICAZIONE DELLA MATERIA E DEI SUOI CAMPI DI FORZE - pagg. 64
- [5] - ESPERIMENTI DECISIVI PER LA FISICA MODERNA - pagg. 123
- [6] - REVISIONE DELLE BASI SPERIMENTALI E TEORICHE DELLA FISICA MODERNA – pagg. 87
- [7] - SCIENZA UNIVERSALE - pagg. 52

Publications on the same subject as other authors:

- [8] - Dr. G. Guazzelli - LA TEORIA DELLE APPARENZE DI M. TODESCHINI - pagg. 107
- [9] - Dr. E. Borgognone - LA REALTA' FISICA DEI FENOMENI ELETTRICI, MAGNETICI, LUMINOSI - pagg. 295
- [10] - Dr. G. Gavazzeni - ELEMENTI DI FILOSOFIA NELLA TEORIA DI MARCO TODESCHINI - pagg. 55
- [11] - Dr. D. Marino - PROVE SPERIMENTALI DELLA TEORIA DELLE APPARENZE DI TODESCHINI - pagg. 12
- [12] - Dr. Foresti e Colaciuri - VOCI PARANORMALI AL REGISTRATORE - pagg. 326
- [13] - Dr. Martinelli - TRATTATO DI AGOPUNTURA CINESE pagg. 894

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# THE THEORY OF APPEARANCES

SUMMARY BY Dr. Pr. Ing. P. GATTY  
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## THE MATERIAL REALITIES

The most important problem of physics can be condensed in the following question: — What is the cause of material's movement? —

It seems easy to answer this question because it is clear that one can move a body hitting it with another solid body, or dragging it with a liquid or gassy stream or even making it oscillate on the sea's waves. But against this experimental certainty one can remark that there are some bodies which seem to be moving without being hit by others for instance : a piece of iron when attracted by a magnetic kernel; a weight falling on the Earth; the satellites turning round their planets; the planets having a revolution movement round the Sun; the stars moving in all directions; the electrons spinning round the atomic nucleus; the molecules oscillating while transmitting sounds, heat, pressure; the electrons of a receiving wire, which undertake an alternative movement when plunged in an hertzian field, etc.

In order to explain all those movements, either one acknowledges that the aforesaid masses are bound to run their orbits because they are pushed by the stream of some fluid invisible substance (ether) and the mentioned particles vibrate because of the waves of the medium in which they are plunged; or one admits that bodies are attracted and roused in oscillation by means of some mysterious gravitational, electric, magnetic thermic, luminous, acoustic etc forces issued from surrounding masses of unknown genesis and structure, forces even more mysteriously transmitting themselves through the vacuum.

But accepting the latter hypothesis would mean to establish as many causes for material's movements as there are different kinds of forces taken into consideration, it also implies the impossibility of leaving out the first hypothesis, being experimentally certain that bodies can be moved hitting them with another body; it means, lastly, to admit a multiplicity of different causes of material's movement ; while in order to arrive to the Universe's unitary mechanics, which is the human hope since centuries, it is necessary to trace the causes of all movements to a single force.

Only if inertial force can be proved identifying itself with all those forces or only if one succeeds to demonstrate that those forces are all produced by bodies' impacts, classic dynamics (in which the only considered force is the inertial one) becomes that Unitarian mother science comprehending (as particular branches) nuclear and atomic physics, chemistry, astronomy, optics, electro-magnetism, thermodynamics, acoustics etc.

But admitting the impact as the single cause of all movements, implies that there must be everywhere some material which, with its butting action arises translatory, rotatory and oscillatory movements on the bodies, even if such hitting material is not to be seen; it implies the conception that space is not empty, but filled with a fluid supplied with density and constituting all bodies in the Universe, as well as the medium in which they are plunged; the whirls of such fluid substance could be regarded as atomic and astronomic systems constituting the various materials while its waves, according to their oscillation frequencies, would form the different kinds of radiating energy which would then reduce to only one, the kinetic energy.

In order to corroborate this enticing unitary thesis it had to be proved that the various perceptible qualities of the kinetic energy (light, electricity, heat, magnetism, sound, etc.) which so far had been regarded as physical realities occurring inside the material and transmissible through space, though having their physical support in the fluid ether's undulatory movements, do not identify themselves with the ether, nor are they to be found in the objective world, but they are feelings stirred up exclusively inside us, when the material, or ether, hits our human body.

Man had never before tried to find and to determine how and where such perceptible qualities of material and kinetic energy were born; this has made impossible the explanation of the world, by means of either the hypothesis of the full or of the empty space, causing both those hypotheses to be alternately tried in vain for centuries.

The first of those hypotheses, as above said, assumes that the masses of the Universe are plunged inside a space full of ether, in which whirls and waves can form, as in a lake full of water.

With this hypothesis Descart pictured the solar system as a huge whirl of ether, in which the planets would be plunged and forced to rotate round the central axis; Lord Kelvin, extending this conception on atoms, conceived atoms ultra-microscopic ether's whirls; Fresnel explained the undulatory nature of light as a vibration of this fluid medium, and later Hertz, proving that electromagnetism propagates itself through space by means of waves, confirmed the existence of a medium capable of vibration.

The second hypothesis, on the contrary, assumes that the masses of the Universe are surrounded by an empty space; with this hypothesis Newton explained how astral bodies' movements could keep unaltered eternally, as they wouldn't be braked by any resistant medium. He conceived that the planets, enlivened with a rectilinear movement of mythical origin, while passing near the Sun, and because of the mysterious force of gravity, were deviated into elliptic trajectories. Then, Weber, in order to explain electricity and magnetism, admitted that those two physical agents were condensed inside the masses and were exerting attraction and repulsion actions at distance in the vacuum, in analogy with Newton's gravity force.

In short, about the end of the last century, physics had reached this inadmissible point: nearly 60% of phenomena could be explained only with the hypothesis of full space (ether), and the remaining 40% almost exclusively with the hypothesis of the void. Neither of the two resulted suitable to explain the totality of phenomena, while on the other hand both the two hypotheses together could not be adopted because they were in conflict with each other. In order to decide which of them corresponded with natural reality, Michelson accomplished an optical experiment, which should have definitely proved whether ether existed or not.

The misinterpretation of the results of this celebrated experiment led Einstein into denying ether's existence and assuming that light consisted of quanta of energy deprived of material mass, called « photons », propagating through the vacuum by unknown ways. This idea had been taken from Plank, who in 1900, studying the thermic power of the black bodies, had arrived to the realisation that each radiating energy propagated itself through space without decreasing and by way of an unknown mechanism. From this hypothesis affirmed by Bohr, and converted into doctrine by Heisemberg, Dirac and de Broglie, one managed to represent the relations between atom's structure and the nature of its radiations by means of one mathematical equation; to each material particle was joined the corresponding energy and demonstration was given that any physical reality, material or energy, does not vary in a continuous manner, but only by way of successive additions of elementary very small and indivisible quantities (quanta).

This way, one managed to conceive material and energy like discontinuous entities and like two identical phenomena manifesting themselves under two different appearances.

Schrödinger, imagining the atomic nucleus like a pulsating point, came to elaborate an ondulatory kind of mechanics which was in agreeance both with the periodic nature of light and its transmission by photons ; he conceived though, a kind of wave completely abstract, representing the variation of probability of finding a photon on the various points of space and again in the next instant, thus depriving the wave of any physical support as well as of the mechanism suitable for its propagation through space. All this, without being able to explain how the luminous oscillations — which keep unaltered their wave's lengths and their frequencies from the emission source till the arrival point — could be regarded as probability's waves, which on the contrary do not keep constant either of those two typical quantities.

Heisemberg, in marked contrast remarking that it is not possible to watch an ultra-microscopic phenomenon without altering it with the radiation used to give rise to the same, chose to give up determining the shape of the trajectory run by the electron round the nucleus and to stand by the simple recording of the frequencies emitted by the excited atom, which he considered the only physical reality experimentally sure. Consequently he abandoned the model of atom conceived by Bohr as an astronomical system ruled by

Newtonian mechanics and built new mechanics exclusively for the atom (quantistic) in order to explain the discontinuity of forces which atom shows; this way he came to break the uniqueness of laws which should rule both the small atomic assemblings and the immense astronomic ones of the material ; besides, being unable to determine the electrons' position and their trajectory round the nucleus, he came to the admission that physics were impotent to establish the laws of ultramicroscopic world.

After 1900 it was beleived that the secular conflict between the two famous hypotheses was resolved by chosing that of the vacuum; but, with that, physics were bound to renounce to phenomena's explanation and to claim its impotence to draw its laws deterministically.

Now, if a science fails to those two finalities for which it has been founded, it is not any more a science.

In order to solve this crisis it was necessary to have the analytical and experimental demonstrations of the real structure of cosmic space, and to this purpose Todeschini has found and given us such demonstrations as related in this booklet.

On the sure ground of the results which confirm the existence of a single fluid substance constituting all bodies in the Universe and also filling the space in between, it becomes scientifically acceptable to conceive material masses, their attraction fields and each quality of ondulatory energy as particular movements of that primordial, invisible but dynamically active substance; one notices clearly the connection and the mutual dependence among those three manifestations localised in different points in the continuity of the fluid medium constituting them and linking their singular and assembled actions and reactions .We have attained the most simple fundamental idea of Cosmos ; the last, if bound to be a unique whole, can't but be made of a unique substance, substratum of all physical things and phenomena.

On the ground of such experimental facts Todeschini demonstrated that: material, gravity, light, electricity, magnetism, heat, sound, odour, taste, force, nuclear, atomic, chemical, astronomic actions, as well as reactions between waves and particles — are all appearances of a unique physical and objective reality: the fluid space' movement (Uniphenomenical principle of physical world).

Hence, all siences unite themselves in single one, mother of them all: Space-dynamics, which rises so to the important level of universal mechanics. With it, the thousands of laws and phenomena which so far separated science in a series of different branches — are reduced to a small number of clear fluodynamic actions; it ensues a great simplification of calcul and a clarity near to obviousness of the ways through which physical phenomena develope and are connected.

## THE PSYCHOBIOPHYSICAL REALITIES

On the whole, this theory shows that the Universe is only made of fluid space having a very small material density; when this fluid space moves in certain series of spheric concentric layers spinning round their common centre with rotation speeds inversely proportional to the square root of their radiuses — forms the elementary particles, nuclear, atomic, molecular and astronomic systems, which all appear to us as perceptible material as well as fields of attractive forces. The ondulatory movements of the same fluid space, moreover, when reaching our sensory organs, rouse in our psyche, and exclusively in it, feelings of force, electricity, light, heat, sound, taste, odour etc.

Such sensations then don't exist in the physical objective world, they are appearances of the physical objective world though being spiritual subjective indisputable realities, since we perceive them directly. On the contrary, fluid space and its movements constituting all material phenomena are realities of physical objective world, extending or developing inside the three volumetric dimensions and are not therefore to be found in our psyche, which takes no volume.

From this discovery, of which we will give the demonstrations later it follows the unexpected revelation that we live inside a dark, atonic, colourless, athermic, odourless, tasteless world, even lacking of forces and electricity. This world is only enlivened by continuous or alternate fluid space movements; which, only when coming to break against our sensory organs, arise the resonance of some oscillators which provoke in their turn in our psyche the corresponding feelings.

To each physical phenomenon originated by some particular fluid space movement, corresponds a special psychical one consisting in the feelings stirred in our spirit when that movement hits our senses' organs.

Todeschini demonstrated the correspondence between material's deceleration against the human body and the sensations ( $S_n$ ) stirred in our psyche by means of 10 psychophysical equations generalising Newton's inertial law ( $F = ma$ ); he discovered also that it is not only force's sensation which corresponds to the product of mass ( $m$ ) by deceleration ( $a$ ), but all other sensations as well are equal to the same product ( $S_n = ma$ ).

This general principle of equivalence between inertia and sensations has a much wider and significant range than that postulated by Einstein solely between gravity and inertia, because it extends the equivalence of inertia to any forces of any nature ; this principle also makes clear that the first sides of the above cited equations regard some sensations ( $S_n$ ) which are perceptible different qualities and spiritual realities to be found only in our psyche; the second sides of those equations, instead, indicate the corresponding masses' accelerations which are all of the same nature and are to be found only in the

material of physical objective world and in the material constituting our human body.

That had to be well clarified in order to understand that the aforesaid 10 equations are not equalities among quantities of the same nature, but are rather some connections between some perceptible spiritual qualities and some dynamic material quantities. All physics' mathematical equalities undertake this way a new meaning; one notices for the first time how quantities change into qualities, while science so far has never explained the genesis of the perceptible qualities of material, forces, impulses and energy, and whether the nature of such qualities is material or spiritual.

Actually, till now it was believed that in the objective physical world existed different kinds of material, force, impulse and energy according to the perceptible qualities that each of them seemed to own in themselves. Since now one must bear in mind that the theory of appearances has shown that those qualities arise exclusively in us as different sensations caused by the same single mechanic quality under which the four said entities are to be found in the objective world. In other words, this theory has shown us that the material of any kind is made of particles consisting of the same substance, being spheres of fluid space spinning very rapidly on themselves in regard to the surrounding fluid space medium; it has shown that the various different kinds of force are arisen in us by the sole inertia's force, which is equivalent to some masses' accelerations. ( $F = ma$ ); that the different kinds of impulse have as objective reality only some quantities of movement, namely some masses' speeds ( $I = m V$ ); that energy's various types are subjective appearances caused by kinetic energy, the only one to be found in the objective world.

It follows a deep modification of physics' conceptions and its language. So, for instance, from now on we must not any more think and say that a body owns a gravity force, or that it is charged with electricity, impregnated with magnetism; that it has a certain colour, a certain taste, a certain odour; that it is hot, that it gives a particular sound; but we shall rather think and say that there is no such force or any of the aforesaid qualities; that particles constituting that body are only fluid space rotating fields which attract or repel the bodies nearby with the same effect as the three above said mysterious forces; that its particles own only some vibrations which produce in the surrounding fluid space certain waves having optic, thermic or acoustic frequencies; those waves, striking across our senses' organs raise in our psyche the colours, the heat, the sound which to us all seem to come from the body. We shall think and say that the body has some molecules owning a particular electrolytic resistance which gives its typical intensity to the electrons' currents producing in us the corresponding feelings of taste and odour.

We shall not think and say that an hydro-eletric power unity transforms force, impulsion and energy of potential nature in mechanic energy, and the

last in thermic and luminous ones, because the water's molecules which are contained in the mountain lake, being plunged in the fluid space stream rotating round the Earth, receive from that stream certain accelerations which drive them towards the planet's centre, and for that reason running down the conduits till the hydro-electric power unity placed in the valley.

Accelerations and speeds of terrestrial fluid field are this way transmitted to the water, from it to the turbine's wheels and to the dynamo, and from the last to the electrons running along the lines till the utilising devices; these, entering into oscillation, produce in the fluid space some waves which we perceive as feelings of light, or heat, according to their particular frequencies.

All along the chain of causes and effects quoted above, there is no transformation of the quality of force, impulse or energy; these three entities remain always of mechanical nature, since from the start to the end there is only a transmission of blows among masses of different size.

The various perceptible qualities in which the mechanical quality seems to have transformed are therefore objective appearances, though being spiritual realities actually arising in our psyche as sensations changing their quality according to the variation of masses' sizes, accelerations and speeds caused in each ring of the dynamic chain just spoken of.

The enormous importance of that lies in the fact that together with objective physical phenomena also the biological and psychical subjective ones (which had been left out before) have been taken into consideration by the exact science. So, for instance : sound is a physical objective phenomenon if only the atmospheric silent vibration reaching our ears is considered; it is instead a biological subjective phenomenon, if one considers only the corresponding electrons' stream aroused along the acoustic nerve when that atmospheric vibration hits the tympanum's membrane of our ears; lastly, it is a spiritual phenomenon, if one considers only the acoustic sensation born in our psyche when that current reaches the detector of telencephalon, psyche's seat.

We can record the atmosphere's silent oscillations with Kundt's apparatus; with a frequentiometre the electrons' currents running ground of such facts we are assured of the existence, process and connection both of the physical phenomenon and the biological and spiritual ones constituting sound.

Contrary to what has been believed so far, biological and spiritual phenomena are experimentally ascertainable like physical ones. With those, though, Galilei's experimental method, still followed by the science which takes into consideration only physical objective phenomena, is inadequate to reality's description; it must then be reformed and extended into comprehending also the biological and spiritual phenomena rising in the subject observer, otherwise there is the risk of attributing to physical phenomena (space's movements), some qualities (sensations) which they have not and projecting those qualities on things; this would lead us to a false science of the object and into searching in the world some ghosts like the

perceptible different appearances given us by material, inertial force, mechanic impulse and kinetic energy.

A century was lost because of having missed these considerations into the search in the objective world of the mysterious force above mentioned and into the attempt of unifying their fields.

Actually, physical phenomena, namely the movements of material either solid, or liquid, or gassy, or dissolved in the state of fluid space, when coming to break themselves against our body, not only are altered by our sensory organs, and transformed in electrons' currents, but are also changed into phenomena of spiritual nature (sensations) by the psyche which receives them and values them under that last qualitative and immaterial form.

Each phenomenon is a function of three variables: a psychical, a biological and a physical one; each of the three components must be exactly indicated if one wants to distinguish which is the real objective reality and which is the subjective and spiritual one.

The aforesaid determinations have allowed Todeschini to discover the electronic technology of nervous system which connects the actions of physical objective world with their representations perceptible from our spirit, revealing also the mechanism of knowledge thus resolving the gnoseologic problem which has tired in vain the philosophers.

From the above said it follows that only when there is relative movement and a certain hitting action between material and the human body we perceive the corresponding sensations. So, for instance, making our hand move inside motionless water, we feel a sensation of force on the palm and the back of the hand because there is relative movement between the hand and the liquid.

Viceversa, keeping them both motionless, we don't notice any force, as there is no relative movement. So, if we run against an acoustic vibration, the number of waves hitting our ear in one second increases, that is, its frequency increases in regard to us; consequently the acoustic sensation aroused in us varies according to our relative speed in regard with the wave's speed. If on the contrary we get away from the acoustic source with an ultra sound speed, the wave doesn't manage to hit our ears, and we hear no sound.

When the material hits our sense organs it causes the oscillation of their atoms; they emit their peripheric electrons, which hit the successive atoms; consequently a series of consecutive very fast blows propagates itself along the nervous lines arising in our psyche, once arrived to the brain, and according to their frequencies and intensities, the corresponding sensations. The electrons' current which travels along the nervous lines has no part of electricity, of light; of heat, of force, of sound, of odour, or of taste, being only a very fast succession of corpuscular blows.

The material of the world surrounding us, as well that of our body, can only transmit motions and blows; therefore sensations and the psyche where they are born must be immaterial, that is of spiritual nature.

The distinguishing trait of Todeschini's theory among all the others, is that of having found and given the physical, mathematical, neurological and experimental demonstration that sensations are born exclusively inside our psyche and, like it, are of spiritual nature.

This has allowed him to discover and determine the marvellous electronic technology of our organs of sense, of motion, of regulation and coordination of central and peripheric nervous system presiding over all vegetative and psychical functions; it enabled him to reconstruct the electric outline of each of them, of their links of connections, including the complex and admirable schema of the supreme centre the human brain.

Thus he revealed and demonstrated that: our auditive organ is formed and works like a telephone, of which the ear is one of the microphones, the acoustic nerve the transmitting line and the appliance placed in the encephalon is the other receptive microphone. Atmospheric waves, which have acoustic but silent frequencies and come from the outside world, hit the tympanum's membrane of our ear, are transformed by Corti's organ in electronic vibrations; the last, conveyed along the fibres of the acoustic nerve give rise in our psyche to different sonorous sensations according to the frequency of the electric current arriving to the brain, this frequency is equal to that of the atmospheric wave which had hit our ear.

The organ of sight is made and works like a television set, transmitting by wire where the eye is the camera, the optic nerve is the transmission line and the receiving set is placed in the centre of the brain where is the seat of psyche. The dark fluid space waves supplied with optic frequency which come from the outside world are received on the bottom of the ocular bulb's retina subdivided in a million cones and 100 million small sticks; they decompose the vibrating image into singular mechanical impulses, and transform them in current of electrons which, transmitted by the fibres of the optic nerve, are detected by the psyche under the appearance of light having different colours according to the frequencies of the arriving wave.

Heat's organ is made and works like some thermoelectric pliers, in which Krauser's corpuscles spread over our epidermis represent the bimetallic couple which transform in electric currents the molecular blows hitting our skin; those electric currents, transmitted along the nervous lines, arise in our psyche the feelings of heat having different temperatures according to the frequency and intensity of the currents reaching the brain's psychobiophysic centre.

The organ of taste is made and works like a telerheostat, in which the chalices scattered over our tongue and filled with saliva correspond to the electrolytic baths; these are linked by the nervous lines to the appliance placed in the brain. The food's moluculas introduced into the chalices undergo a saline solution and according to their electric resistence they vary the intensity of the current transmitted to the brain, and from it taste is perceived by our psyche.

The organs of olfaction touch, electricity etc. are all some kind of transformers of mechanic impulses into electric currents which, transmitted to the brain create in the psyche the various sensations of odour, force, electricity.

The receiving sensory devices are double and symmetrically disposed in regard to the middle of the human body; they are connected to the brain by some bundles of nervous lines which are also double and symmetrical; these last cross each other and end up on the brain's two hemispheres' surfaces, thus forming in them two images, while we perceive only one; Todeschini has shown that that is possible only if the two areas on opposite sides are connected by a central one where the two images could superimpose themselves into a single one, as it happens in an optic telemeter.

Following this conception, he has anatomically found the bundles of nervous fibres which link each of the two side surfaces to the corresponding central one placed in the telencephalon; they all form the 8 electrotelemeters of the senses. He found even the 8 telemeters of movements; he found also that the first central surfaces and the second ones form respectively the psychobiophysical centre of sensations and movements.

He also demonstrated that all nervous lines are made and work like some electricity's conductors, and their neurons like voltaic batteries in order to reinforce the currents weakened by the lines' resistance; that the gray matter of the spine formed by billions of neurones, works like an electric power unity in order to supply energy to all organs and circuits of the nervous system.

He demonstrated that the cerebellum is a combination of telemeters of direction and height automatically actuated or commanded by the psyche to coordinate the orientation of the bilateral organs of sense with those of the organs of movement towards a determined point and follow their eventual displacements; that, finally the brain is the supreme centre of command in which are disposed all the receiving apparatus of electric currents coming from the peripheric sense organs, all the transitory apparatus of the currents designated to teleactuate the organs of peripheric movements, all the hypophysis appliances for the automatic regulation of the glands and internal secretions, and of the peripheric corpuscles which preside over the different vegetative functions, as also the four psyche bio-physical centres that provoke the normal sensations in the psyche; the particulars of graphic symbols in written language, phonetic sounds of the spoken word and the centre which they use to actuate the organs of movement.

The psyche, although immaterial, has its seat of perception and of action in the four telencephalic centres, as only in them the electric currents which come from the sense organs, arrive; these currents are transformed into sensations by the psyche; the nervous line suitable to transmit the electric currents which actuate the organs of movements leave only from the 4 telencephalic centres towards the periphery.

The psyche is, therefore, the supreme command of the human body and it uses the apparatus of the brain in order to receive the sensations which inform it about the objective, external physical world; the psyche uses the transmitters of the brain to manifest itself in the external world by means of movements, because we are unable to express our thoughts or to make any action if we do not move some part of our body.

But, as the sensations are not to be found in the material of the objective world, while in the human body they are immaterial activities which rise exclusively in the psyche, so the psyche must also be immaterial, it must not occupy a space as material does, must be without dimensions, that is, of a spiritual nature.

The psyche identifies itself with the soul; sensations, and voluntary movements, are its exclusive activity just as thought, conscience, memory and reason constitute the experimental proof of its existence in our brain.

## THE SPIRITUAL REALITIES

If we follow the history of philosophy and science from 1600 we are struck by their profound ideological contrast. In fact, the dawning experimental physics founded by Galilei, which excluded the observing subject and the biophysical phenomena which rise in him, with the advent of positivism, orients itself decidedly towards the object, namely towards the material and its phenomena. These last were thus retained as the only realities, for which man had to look in order to find the « Prima causa » in the Universe, denying God and all spiritual and transcendent realities. Subsequently science arrived to the point of modern hermetic and one sided theories which reduce the idea of the world to an incomprehensible mathematical abstraction of tensors.

From that is derived the conception that the universe is founded on the irrational and ruled by the law of probability which has replaced the law of cause and effect. This leads to imagine that all things are derived from the automatic combination of different chemical elements and leads to the substitution of the blind action of chance to that of a supreme intelligence as First-Cause of the marvellous order noticed in Cosmos.

So the agnosticism of science, vaunted as a guarantee of impartiality, is an illusion since physics are actually one sided and, from their birth till the present, they have always been oriented exclusively towards the material and the immanence. They were never turned to see whether the transcendent spiritual realities existed or not, although these are perceivable with the experimental method that is their prerogative and basis.

On the contrary, Philosophy, thousands of years old, had already taken into consideration these last realities, and with Descartes it began just then to follow a way that would have led, in the beginning, to a sceptic empiricism denying every possibility of objective knowledge, and in the end, to the

immanent idealism which denies the very existence of the objective world and holds true only the spirit of the observing subject and his activities.

Philosophy and science so followed from that time two roads diametrically opposite, but which evidently took them far from the truth as it is clear that if the material and its phenomena produce in us subjective material representations it is also true that, in order to rise these feelings, there must exist outside ourselves, something truly objective, so that it can be different from what we perceive.

Consequently the most important problem consisted not only in distinguishing the objective realities from the psychic subjective ones, but in demonstrating mostly that the first are of material nature while the second are of spiritual nature.

Well, Todeschini has shown that there exists some material realities which occupy, or take place in the three volumetric dimensions and last for a certain duration of time, like fluid space and its spinning or oscillatory movements, but there also exists some realities which don't occupy or take place in the three volumetric dimensions but only in time as do sensations and the human soul.

Immaterial, namely spiritual, that is the characteristic demonstration of such theory. Material, even in its smallest particles, occupies a certain volume. Spirit, as well as its activities, and spiritual entities not being by definition of material nature occupy no volume though they occur within a certain time. So, for example, light, heat, force, electricity, taste, sound and odour, being subjective feelings do not occupy volume although the fluid space oscillations which rouse those sensations in us occur in the three volumetric dimensions.

Thought itself, being an activity of our spirit, occupies no volume although it occurs in a certain time. In fact, one cannot fill a bottle with thought, with heat or sound or with force, just as one cannot view the soul under a microscope nor grip it in a pincer as the positivists would like to think possible. The proof of the existence of such spiritual realities has been found in three different fields by Todeschini.

In the philosophic field: by considering that sound, heat light, electricity can manifest themselves to us only when there is an impact between two masses because such entities do not exist inside the two masses before the impact and therefore they cannot give what they did not possess before hitting each other. Actually, before, during and after the impact only accelerations of the two masses are to be found, as well as vibrations of their molecules, atoms and electrons.

In the physic and mathematical field: the aforesaid demonstrations are drawn from experiments and equations of balance between the energies playing on the phenomena. The striking mass cannot transmit to the mass it hits force, heat, sound, electricity or light because after the impact the two masses and their constituting elements have the same total kinetic energy that

they had before the impact; consequently they could not have acquired any further energy under the form of the aforesaid qualities otherwise this would lead to the mathematical absurdity that a certain quantity of energy can be equal to a double quantity, or to the physical absurdity that by means of the impact one can obtain twice as much energy as the amount employed to move the hitting mass. One must therefore realise that only if the oscillations of the hit mass transmit themselves to the surrounding fluid medium, and if these oscillations shake our sense organs producing there some electric currents transmitted to the brain, can they raise the same feelings in our psyche.

Lastly, in the neurological field : those demonstrations come from the realisation that the nervous lines of all sense organs are made like electric conductors and therefore they don't give way to sensations but exclusively to a very rapid succession of corpuscular shocks.

Actually, the optic nerve is opaque and does not give way to light; the acoustic nerve is like a telephone wire which does not transmit any sound but exclusively electric impulsions, etc.

Todeschini has shown all this, connecting the peripheric sense organs to the corresponding organs of the cerebral matter by means of conducting circuits disposed externally on the human body. This way he could detect that there were always some electric currents on the lines placed on the exterior each time the sense organ was struck by some physical vibration. By means of a frequenteometer he could establish that those currents had the same frequency as the wave striking the sense organ. Now, if in the brain material organ only electric currents are to be found, the psyche, which transforms those currents into sensations, is not a material organ but an immaterial entity. The great importance of these demonstrations does not depend only on the fact that for the first time man has managed to prove, by means of exclusively scientific arguments, the existence in us of a soul of spiritual nature, in harmony with religious faith, but also in the fact that forces are sensations which cannot be found in the physical world, that is, that they are immaterial activities which can be found exclusively inside entities like our soul and those of the spiritual world.

The ten psychobiophysical equations indeed are valuable reading them both from right to left and vice versa. For instance, the first of them ( $F = m a$ ) tells us that as a body hitting our organ of touch produces an electric current which the psyche transforms into a sensation of force, so also our soul, emitting a certain force addresses the electric current along the nerve which makes one of our hands move in order to displace something. The spiritual forces or the soul can so give acceleration to some masses. However, the small forces of our soul are only sufficient to liberate the electric energy concentrated in the grey matter of our spine and this is not strong enough to move all the masses of the universe. One must admit that the immense forces needed for that purpose all originate from the spiritual world. Since forces enter in all dynamic relations we are sure that they are the actions exerted by the spiritual

world to the fluid space in order to make it accomplish all the particular movements in which, as we have just seen, all physic phenomena are identified. The conservation of the total quantity of movement ( $m V$ ) in the physic world is therefore due to the conservation of the equivalent impulsion ( $I$ ) of the corresponding forces of the part spiritual world ( $I = m V$ ).

One must then admit that movement has been put in the universe by one First-Cause outside the universe, namely transcendent, which, being immaterial, is of spiritual nature.

This way one arrives to the scientifically proved certainty of the existance of the human soul, of the spiritual world and of God, as it is only from those three spiritual entities that forces can be emmitted.

God's will is manifested in the laws which coordinate and orient those forces to move the fluid space with the modalities apt to give way to all the phenomena of the inorganic and organic physical and general purposes that He wishes, that each day man is discovering in everything around.

The human soul on the contrary, cannot break the physical laws although being able to utilise them for its spiritual or physical well being — and even for purposes distinctly opposed to its well being — because it has the possibility of utilising the organic mechanism of the human body at its disposal in order to accomplish the action it chooses according to its free arbitre.

Lastly, following the chain of cause and effect constituting the irreversible course of finalities which tell us that from the solar system originate the mineral, vegetative and animal kingdoms till the human body, and not vice versa, Todeschini has shown that the final goal of the Universe is that of permitting the experience of terrestrial life to the human soul.

The Universe is, therefore, a defence system of the human soul, but such a system implies an intelligence which has conceived, built and coordinated it, so that each part and its ensemble answers to the precise aims of defence (both automatic and commandable) which are found in it. From that one deduces that the existance of the Universe demonstrates that of a Supreme Intelligence who has ideated and created it and who maintains it.

One further deduces that since each means of defence by command implies an intelligence which can utilise it, the existance of the functioning human body demonstrates the existance of the soul which uses it.

Todeschini has revealed that that soul has some neorologic organs and some faculties act not only to perceive sensations and actuate the body in order that it might live but that it has also the ability to remember sensations, to combine them, to form thought and understanding, to ideate and express itself in oral, written or figurative conventional language. It arrives to the point of abstract reasoning in order to understand not only phenomena and their laws but above all, to the understanding of the existance of its own self, of the spiritual world and of God.

This theory is much more vast and complete than that of Einstein because it comprehends in addition the biological and spiritual phenomena without whose consideration one cannot either explain the physical science or arrive to the unitary science of Cosmos; because it has unified the structure and laws of material and its attraction, continuous and alternative fields; it has determined the nature and seat of sensory qualities of material as well as of kinetic energy; it has given the demonstrations of the existence of the human soul, of the spiritual world and of God., favouring the agreement between science and philosophy about the truths and supreme realities of religion, with all the good material and spiritual consequences that such scientific certainties can give to mankind.

This theory of Todeschini has demonstrated that one goes to God by means of faith and science, that the holy scripture and the greatest book of the world take us to Him.