

PAOLO EMILIO AMICO-ROXAS

THE SUPREME HARMONY of the UNIVERSE

The Endospherical Field Theory



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PAOLO EMILIO AMICO-ROXAS

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Kemi, the name that was given to the
mythical Land of Egypt, source of
every knowledge and understanding.

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La suprema armonia dell'universo: la teoria endosferica del campo

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To Ulysses G. Morrow
to Anna

INFORMATION RECORD

Amico-Roxas (last name), **Paolo Emilio** (name) born in Rome in 1907

Academic titles:

Degree in Mathematics and Physics at the University of Rome.

Honours:

Academic Lauro Tiberino in Campidoglio (1961).

Awards:

Presidency of the Council of Ministers Culture award (1961).

Teachings:

Mathematical Analysis at the University of Rome

Mathematics and Physics at high schools.

Special studies:

Philosophy of science and Cosmology.

Main publications:

Compendio di Meccanica Razionale [T.N. Compendium of Rational Mechanics] (2nd ed.)

Il Problema dello Spazio e la Concezione del Mondo [T.N. The Problem of the Space and the Conception of the World].

Conferences:

University and cultural centers of Buenos Aires

People's University of Rome

IX International Conference on Communications in Genoa (1961)

IV and V International Congress of the Astronautical Science Association

XLI International Trade Fair of Milan.

International Center of Comparison and Synthesis (1980), etc

«Apparenza e realtà nello scenario del Cielo» [T.N. Appearance and reality in the Sky scenario] at the C.I.D.A. in Genoa, October 1988

PREFACE

The reader might ask why a publishing house like Kemi, that pursues strictly initiatory ends, decided to publish a book with a strictly scientific character.

The continuation of this preface will amply justify the reason.

The Hollow Earth Theory is nothing new.

As the author will further explain, such theory has been sustained by some writers, and it made its first appearance during last century, peeping out between the folds of science, “with neither infamy nor praise”. It has been regarded more as a curiosity and so not worthy to be considered, also because it was presented as a theory too upsetting and fantastic.

The Earth as the extreme limit of the Universe that contains in itself the whole creation!

This conception, not only contradict the current scientific theories, that postulate the Universe as immense, even though finite, in a continuous expansion, towards borders not well established that our reasoning cannot still understand, with no accordance with our psychology as well, that based and elaborated from our senses, presents a much different reality.

But what our senses perceive is the real external reality?

The author will answer in detail about this question on our vision. We must now remark that the hollow earth hypothesis, with all its implications, can answer to a strictly scientific concept, based on the transformation by reciprocal radii [T.N. cited as *transformation by reciprocal radii vectores* by the author, nowadays more shortly known as *geometric inversion* or simply *inversion*] already applied from Mathematical analysis to Potential Theory, that allow the passage from a convex sphere to a concave sphere.

This demonstration, summarily outlined by the author, can be easily found in any book of Advanced Analysis. The great Sommerfeld, in his “Partial differential equations in Physics” published in Princeton, already predicted the great possibilities that this Theory offers but has been said that such transformation was applied only to Potential Theory “Unfortunately, these mapping methods for the two- and three- dimensional case are entirely restricted to potential theory.”

To Roxas goes the credit to have re-elaborated masterfully the existing elements, helped by the studies of Morrow, building a theory that presents us a new vision of the universe, unexceptionable from a mathematical and physical point of view.

Are we sure this is a new theory?

Why this revival at the end of this era?

If we look back to our far history we can ascertain how the cosmological theory corresponds, in all and for all, to the Hollow earth theory. It is at the base of every cosmogony. For Orphism, as well as for the Chinese and Egyptian conceptions, at the beginning there is the Egg, and when the creation begins, the Fire, the Light, appears *inside of it, not out side of it*. Fanes manifests itself inside, not outside. With this act the sky and the earth was created and the worlds start to rotate.

Then the theory passes and stops at the initiatic centers, at the Templarism and in the posteriors schools. It reappears in the 1700 to go back in the darkness again.

A purely theophisic conception but also mathematical at the same time.

The fact that now is imposed is not whether to believe or not to believe to the endospherical theory. No acts of faith must be done; but a series of reflections, and then an act of courage.

The mathematical proofs fully confirm its possible existence, as well as the geometrical and physical proofs. Now It only remains the personal belief, or better, the personal orientation: if we want to accept an universe where emptiness is the rule, against the alchemic “*nequam vacuum*”, where Earth is a lost rock navigating into infinity, and where the cosmological conception loses in real existential void, or if we want to accept our earth as the real boundary of the Universe, where everything is throbbing of energies and the Cosmos appears as a Living, in the real meaning of the word and in the Neoplatonic meaning, where forces are the real holders of the

system.

There we have a pessimistic conception of the world and nihilistic in a certain way, that dilutes *everything into nothing*, born at the end of the Kaly Yuga; here we have a live and throbbing conception, sustained by math, heritage of ancient mysteriosophies, handed down in medieval alchemic circles, and rich of internal harbors. Here lies the problem.

Kemi

LETTER TO THE EDITOR

Dearest Doctor Angelo Angelini

Of the Endospherical Theory, with different titles, has been treated by a number of authors (see introduction to the book «La Suprema Armonia dell'Universo - La Teoria Endosferica del campo» [T.N. The Supreme Harmony of the Universe - The Endospherical Field Theory]).

To be correct and with more precision, wherever it might arise a possible priority, and for a better information for the reader, among other valid argumentations I distinguish the *discoveries* that come from my own research work with the term *novelty*.

I reference some authors, in particular Americans and Germans, that in the past century, and even more in this one, have dealt with the endosphericity of the Universe: the Americans Ulysses G. Morrow (deceased in 1950) and Cyrus Reed Teed (Koresh) and the Germans Peter Bender (Worms, deceased at the lager of Mauthausen), Freder Van Holk (Bielmanner-Verlag, Munchen), P.A. Müller-Murnau (1940), Bruno H. Bürgel (1946), Ernst Barthel (1940), Karl Schöpffer (1869), Karl Neupert (Augustburg 1940), Johannes Lang (Schirmer Mahlau, 1941).

The last one mentioned, at page 25 of his volume «Die Hohlwelttheorie» writes: «In the mines of Tamarack in Calumet (USA), two lead wires were dropped down 1300 m deep. According to the measurements made by the workers, the lead wires did not converge, they did not get closer to each other, as it should happened on a *convex* earth, *they diverged* resulting in a *concave* terrestrial surface». This very singular experiment, not confirmed *at the time* (I do not know the exact date) with physical argumentation, was strangely forgotten by most.

Transformation by reciprocal radii was treated by the mentioned authors and others but, except for Morrow, they did not respect in their diagrams the accuracy instead observed in my own writings (Tables 14 and 15, and the text of Guido Castelnuovo). An *essential* point was however *neglected* that is the diagrammatic aspect/*side?* obtained with/*from?* the application of such geometric transformation *to* the classic Universe (Tables 14 and 15), aspect that identifies with the physical aspect (Table 3) of the electromagnetic spectrum (Maxwell) obtained by iron filings sprinkled on a *piece/sheet* of paper placed over the two poles of a horseshoe magnet.

This is the crucial point and it is a *novelty*: this/*such?* identification takes us to consider the diagram *not anymore/no longer* as a structure (Table 3) of physical spectrum of the lines of force of electromagnetic nature of light/*of electromagnetic nature of the physical spectrum of light's lines of force?* (Maxwell) in contrast with the pure and unfounded hypothesis of the universal «refraction».

Another *novelty* is the demonstration of the *physical impossibility of the light-year*, as I revealed in my article published on p. 27 in issue 38 (February 1989) of Kemi-Hathor magazine (Ch. III).

The transformation by reciprocal radii, known for over a century, *applied* to the image of the classic Universe, as it is known, *preserves the angles*, which means that the angles formed by two classical? euclidean straight lines are the same those formed by the corresponding *punctual* non-euclidean curves. This means that the terrestrial observer cannot distinguish, by pure ocular observation, between the classic Theory or the Endospherical one: in the classic Theory lines of vision are *supposed to be euclidean straight lines*, while in the Endospherical Theory the corresponding lines are *curves, non-euclidean*. In the classic Theory the lines of vision are *thought to be straight* due to a psychic phenomenon of the human optic center (Ch. III), while the endospherical lines of vision are conform to the *fact of the isogonality* of the transformation ?? «Hypotheses non fingo» [T.N. I frame no hypotheses] said Newton. Therefore, since light travels only in curved lines (see demonstration in Ch. III), the classic hypothesis must be excluded.

Newton's universe, genially conceived, is the *specular image* of the *real* Universe, which *is reached/can be reached* by the application of known analytic and geometric formulas.

Excluding therefore the classic hypothesis, we must/it must be/one must? Necessary admit/recognize/accept/allow? the endospherical one, established by scientific proof based on facts of our physical reality ??? This is the *third novelty*.

A *fourth novelty* is the *law of conservation of energy* as I treat it on p. 17 in issue 39 (April 1989) of Kemi-Hathor magazine (Ch. VII). The *novelty* consists in offering scientific explanation of the conservation of energy, that *circles* from Sun to Stellar Center??, joined by a magnet, and then from Stellar Center to the sun, as it happens in magnetic field produced by a magnet where magnetic induction field lines of force are directed *externally of/to?* the magnet from the North Pole to the South *one?* and *internally of/to?* the magnet from the South Pole to the North *one?*.

The universal energies circulate in the Universe *without any leakage* and so with no recovery phenomenon *independently* of the possible nuclear fusion processes inside the Sun.

The existing problem of the colossal quantityes of energy that in the classic system take off from the Sun and the Galaxies and *then?* infinity disperse / *disperse/leakage to infinity*, or as Einstein wrote, according to the slight relativistic curvature of space (close to zero), there would be a return of the energies to the point of beginning after a path that lacks a physical explanation that it is not surreal, that lasts billions of years. This problem is solved with the new Theory.

The four *novelties* are not included in the aforementioned vast literature. Therefore any possible discussion about/around? the priority of new ideas does not have any foundation/*can have no basis?*

To you, egregious/dear? Dr. Angelini, go expressions of my esteem and my thankful thoughts to have greeted in Your Editorials my writings; with kind and sincere regards.

P. E. Amico-Roxas

ENDOSPHERICAL FIELD THEORY

A new conception of the world?

The great successes of Celestial Mechanics, the very remarkable confirmations, in the experimental domain, of Newton's law appear in the mind of the modern physicist and, even more to the man in the street, as a further proof of the truth of the classical world conception (the modifications brought by Einstein are quantitatively very slight).

However in this book a new conception of the world is presented; the same facts, the same experiments can be interpreted in a different/another? way. This is about, as Einstein said referring to his own theories, «New and original thoughts about already well-known experiments and phenomena».

The concept of field, established in the last century, in both experimental and theoretical domain, with Maxwell's famous equations, is the fundamental idea of this new Theory. The world is conceived as a field: the latest and most imposing developments of physics let appear the field as the basic and most natural energy activity.

The Universe, this huge energy store in incessant activity, therefore appears to the modern physicist as a field.

All the facts that the classic Theory explains, find an explanation just as much exhaustive in the new conception of the world, which furthermore, not only allows to operate calculations and predictions of celestial phenomenons with the same accuracy by which are operated on the ground of the Copernican conception, but also fills other important gaps in the traditional concept of the Universe.

There is much talk about positive sides of the classic conception, but much little about its defects.

Many are those who scarcely know that a principle such as the conservation of energy is violated in a disconcerting manner by the classic Theory, a violation that not even Einstein Theory, which admits an elliptic space as demonstrated by Armellini, was able to fix.

The planets only use about 20 billionths of the huge quantity of energy emitted by the Sun: all the rest is not recovered, but completely lost! Eddington underlines the «strange fact ??» of the symmetrical fall of cosmic rays on the Earth's surface. The cosmic space is uniform (it can be practically considered the same even with relativistic corrections), motions therein are rigid: Eddington along with others, refuses a space without features (curvatures), furthermore observing: «Undifferentiated sameness and nothingness cannot be distinguished philosophically. The realities of physics are unhomogeneities, happenings, change».

The fantastic duration of billions of light-years by the light rays can't not leave physicists perplexed, who is forced to accept it, not because it emerges from experimental facts, but because it is a consequence of the premises from which the classical world conception is based on. Armellini underlines two «peculiar» facts: Earth is the densest among the bodies of the solar system, and moreover, it is the favoured about its habitability. Now, how come Earth, which in the classic conception is an «ordinary planet», presents such a «privileged» situation?

Planck noticed the «peculiar difference» between electrons' behavior, which they can only circulate in well established orbits which differ from each other discreetly, and the behavior of planets where no orbit seem to be preferred over another: this is in contrast with the upheld analogy, between the atom and the planetary system.

There are still other weak points in the classic Theory; and scientists like Eddington, Armellini, Planck and others of same scientific level that have repeatedly stated. A theory that provides a comprehensive and rational explanation to accidental and insufficiently explained facts, seems to deserve consideration and critique.

The identity between heavy mass and inert mass, that accidentally arised in the classic Theory (Newton himself noticed it), in the relativistic physics it appears instead as a fundamental fact, what made Einstein say «A mystery story seems inferior if it explains strange events as accidents. It is certainly more satisfying to have the story follow a rational pattern».

Facts as the symmetrical fall of cosmic rays on the Earth's surface, the peculiar position/situation? of the Earth, as regards the density, compared to other celestial bodies, the non-uniformity of the cosmic space and the non-rigidity of motions, the luminosity of the night sky with no clouds nor Moon, follows from the new Theory,

without the need to introduce new more or less forced/contrived, more or less plausible hypothesis, whereas in the classic Theory are presented as «strange as accidents». The new Theory, in which the same facts «follow a rational pattern», appears more satisfactory.

The classic Theory implies amazing facts like, e.g., the quick flight (3 km/s) of Antares, which has a diameter of more than half a billion kilometres and a density 2.000 times lower than air, and as the speeds of tens of thousands km/s of millions of «Suns» which diameters many thousand times the Earth-Sun distance, and densities in the order of 10-23(20 corpuscles, atoms or free electrons/free atoms and electrons each cubic centimeter), i.e. densities billions of billions times lower than air's.??? These flights of huge bodies with their densities very close to zero and speeds not far from the speed of light, represents phenomena that are hard to believe. In the new Theory there are instead, very high densities, reduced volumes and speeds referred to local length units: these latter phenomena are much more likely and reliable.

* * *

In my volume «Il Problema dello Spazio e la Concezione del Mondo» [T.N. The Problem of the Space and the Conception of the World] published in 1960 [T.N. freely accessible online at <https://archive.org/details/IlProblemaDelloSpazioELaConcezioneDelMondo>]. I extensively developed the Endospherical Theory and later I published some minor works and done many conferences. Now I am publishing «La Suprema Armonia dell'Universo» [T.N. The Supreme Harmony of the Universe] with a few modifications (Earth is stationary/immobile/unmoving/motionless ??) and with some very important additions:

- 1) The geometric inversion (by reciprocal radii) is illustrated and attributed/connected/tracked back to the physical representation of an electromagnetic field. The inverted universe assumes the appearance of Table 15, identical appearance of the electromagnetic field representation (magnetic spectrum) on Table 3. This constatation leads to consider that the physical Universe is an electromagnetic field.
- 2) This geometric transformation is a bijective isogonal and conformal one-to-one correspondence between two overlapping planes well known?? by mathematicians; it has the remarkable property of preserves the angles and reverses their orientation. The first figure is made of straight lines and the second one of arcs of circles, one transforms into the other; that is the straight euclidean geodesics transforms in non-euclidean curved geodesics and vice versa.
The observer cannot distinguish between euclidean space and non-euclidean space because observation data remains unvaried, like a mirror/like in a mirror/as a mirror.
- 3) In Ch. III the physical impossibility of the light-year is demonstrated. The electromagnetic nature of light (Maxwell) conduces/attributed/connected/tracks back to curved geodesics of the field.
- 4) All the experiments trying to measure the rotation of Earth have given negative results (Ch. X)
- 5) The equatorial bulge is due to the internal rotation of the cosmicsphere/cosmosphere from East to West, solving also the problem of the so called continental drift.
- 6) The (minimum) depths reached inside the so called Earth's crust, could be not end with a gradual attenuation of the field until tends to zero.
- 7) Einstein curvatures are added to the those of the new Universe: the relativistic radius of curvature measures about 30 thousand billions [T.N. 30 trillions] of light-years, equal to about 3×10^{23} euclidean kilometers (space is almost flat) whereas the endospherical radius of curvature doesn't exceed 6.370 euclidean kilometers.
- 8) The demonstration of the principle of conservation of energy (Ch. VII)
- 9) Is the endosphericity of the Universe based on scientific proof?

In Ch. III the physical impossibility of the light-year is demonstrated. I have not received the slightest objection from anyone.

Considering/remaining on the? observation data of the behavior of light only two hypothesis can be stated

(the classical one and the endospherical one); being unacceptable the first one, its necessary to agree to the second one. Since the geometric transformation well known to mathematicians has been scientifically proven with its isogonality, there is no doubt that light, of electromagnetic nature, follows the lines of force of an electromagnetic field with unchanged observation data, so the endospherical theory stays physically proven.

Already in the past appeared a book in 1719 written in Latin and German entitled «Opus Mago» now owned by A.M.O.R.C., in San José, California (Ancient and Mystical Order Rosæ Crucis) that was about an Endospherical Universe, but unfortunately, despite of a polite request, I was not even allowed to get a photocopy [T.N. “Opus mago-cabbalisticum et theosophicum: ...” wrote by Georg von Welling, now freely accessible online at <https://archive.org/details/herrngeorgiivonw00well>, and English version partially accessible at <https://books.google.it/books?vid=ISBN1578633273&printsec=frontcover>]. I was also informed about a similar Chinese theory, but I could not find any trace of it.

* * *

The Endospherical Theory or Cosmocentric System had in the past several supporters, who called it «Hollow World Theory». They are, among others, the Germans Karl Neupert, Johannes Lang and P.A. Müller and the American Cyrus Reed Teed. I don't dwell, however, on the arguments, whereby the named Authors justify that Theory, since I consider their arguments rather weak, mainly because they are based on the Euclidean space hypothesis; moreover, it doesn't seem to me that the scientific rigor is/be sufficiently respected.

Many years ago, I myself divulged Neupert's Theory, but very soon I definitively? gave it definitively? up definitively?.

Among the supporters of the new world conception by far the foremost I esteem is the American Ulysses G. Morrow/I esteem as the decidedly foremost upholder among all supporters of the new world conception the American Ulysses G. Morrow, who died on 11th September 1950, at the age of 86 (he was born on the 26th October 1864, in the borough of Freedom, in the Barren County, Kentucky);

I had an intense epistolary correspondence with him since 1934 until his death/I entertained with him an intense letter exchange since 1934 up to his death. This correspondence is assessed/divided/partitioned? in two periods: the first runs/was from 1934 to 1939 while I was in Argentina; the second one from 1940, year that I came back to Italy, until 1950.

Morrow is the author of the drawings contained, with some modification brought by me, in the Tables, except the last one, which is due to the skill of Mr. Fr. Zimmerli of Zurich, undergoing, however, a substantial rectification of mine/modifications of my own. Morrow found a method for practically carrying out the inversion procedures; he performed some experiments on the Florida beach in the U.S.A., to prove Earth's concavity, but then he became aware of/realized/realisé his mistake (as he wrote me in his letter dated 28th November 1946), in the sense that the new world conception is a new space Theory (a space where the motions are not rigid): it is exactly, as he himself called it, «the Field Theory».

Morrow's work was restricted essentially to the geometric side and to the description, broadly speaking/in broad terms, of the Universe physics, in a field configuration. There were, however, in Morrow's work many starting points/ideas for a organic development and for a systematic re-elaboration of the whole subject/matter, what/this I have achieved in this work, with approfondimenti/insights/elaborations that deserve the most serious attention.

Paolo Emilio Amico-Roxas
Rome - October 1990

Chapter I

TRANSFORMATION BY RECIPROCAL RADII

Transformation by reciprocal radii refers in general to three-dimensional space. I expose this transformation in reference to the plane, or rather to *two overlapping planes*.

Each point **of/on** one of the two planes corresponds to another point **of/on** the other plane, and vice versa. Overlapping points, are defined *fixed*, that is they correspond to themselves. Are *fixed* the points of the circumference with respect to which the transformation is carried out.

An important exception is the following: *all* the points at infinity (i.e., the *directions* of the infinite number of straight lines) correspond to *only one* point, the center of the circle with respect to which the transformation is carried out, and vice versa.

The geometric inversion (by reciprocal radii) is a quadratic or Cremona transformation and has the following properties: with respect to a circle transforms [T.N. or commonly, maps] arcs in arcs, straight lines in circles passing through the center of inversion O. The straight line passing through O transforms into itself.

The inversion is an *isogonal* or *conformal* correspondence, which means it preserves the angles but reverses their orientation.

The inversion extends to the 3rd coordinate (sphere) with the same properties: spheres are transformed into spheres, planes into spheres passing through the center of inversion and vice versa. To the plane at infinity, that is to *all* directions of space, corresponds the center O' of the sphere with respect to which the inversion is carried out. We will treat the transformation referred to the plane, for the sake of simplicity and clarity. Each internal point of the circle of inversion corresponds to **an external one / one outside to it/ one to the outside**, and vice versa.

In Table I we considered two circles (**however considered overlapping**): if we **overlap** the two circles we will have, in the *same* figure the internal curved tangent and the external straight tangent, that correspond themselves; the two overlapping points of contact constitute a single *fixed* point.

At the left in Table II we have the geometric procedure of inversion, to obtain the internal point of the circle that corresponds to an external point and vice versa.

Given a circle with a radius e.g. 1 meter, we consider point 2 (2m away from the center of the circle) and draw from 2 the two tangents to the circle, passing through the two contact points *a* and *b*, now we consider the point where the line segment joining *a* and *b* intersects the line segment joining 2 with the center of the circle: the point of intersection is 1/2 (half a meter) which is the multiplicative inverse [T.N. or reciprocal] of 2 (hence the name *inversion* or *reciprocal radii*).

To the generic external point *m* will correspond the internal point $\frac{1}{m}$ and vice versa. If it is a point at infinity then from it are drawn *parallel* tangents that touch the circle at the endpoints of a diameter of the given circle, to this generic point at infinity will correspond the center of the circle, that is, as already mentioned, to each point at infinity (direction) corresponds *exactly one point*, that is, the center of the circle of inversion.

To find the center N of a circular arc OP, arc that corresponds to an *external* segment of the straight line C we consider the small figure **at the right in** Table II where the *external not dashed* line segment of C corresponds to the arc OP passing through O and trough the *fixed* point P.

The searched center N is located at the intersection of the extension of the **diameter of the circle/circle diameter/circle's diameter** with the perpendiculars on the midpoint of the chord OP, Table II.

To the dashed straight Euclidean segment inside the circle of inversion corresponds the **completion of -/a/the non-Euclidean arc external to the circle (also see/see also Table XI)**.

Let's/we consider Table IV; to each *curve/curved line* of the upper figure, corresponds a *straight line/straight one* of the lower figure. The two figures, as already mentioned, *should/must* be thought as overlapping. The upper figure represents the *non-Euclidean space*; the lower figure represents the Euclidean space (*where/in which* the Euclid's 5th postulate *is valid*). To the *straight tangents ab, bc, cd* of the Euclidean space (lower fig.) corresponds the *curved tangents ab, bc, cd* of the *space with/of variable curvature* (upper fig.); to the straight Euclidian parallels correspond the curved non-Euclidean parallels; the angles intersect the Euclidean lines and the corresponding non-Euclidean lines *are equal/identical*. The *invertible/reversal/reversible* formulas *of/for* the transformation from the *classic/classical* exospherical cosmo into the endospherical one are:

$$x = \frac{r^2 x^1}{x^{12} + y^{12}}$$

$$y = \frac{r^2 y^1}{x^{12} + y^{12}}$$

where x^1 and y^1 are the *inverse coordinates* of x and y

* * *

Projectivity [T.N. *best known as homography or projective transformation*] is a bijective algebraic correspondence between S^1 and S'^1 or, *also/even* a bijective and continuous correspondence between S_1 and S'_1 , that preserves *bi-ratios* [T.N. *better known as cross-ratios*]. *Involution* is a remarkable case of projectivity between two forms of the first *kind/species* in which/where *any/either* the two elements always correspond twice/*in double way*.

The two elements are said to be *conjugated* in the involution, which *it?* has two fixed or double points in each of which two *conjugated* elements coincide.

A conic *determines/establishes/set/make up* a correspondence, *subordinated/subject/dependent* to the conic, between the points and the lines of a plane: this correspondence is called *polarity*; an *involutive correlation* between two overlapping planes is a *plane polarity*.

If a point P and a plane p have a *two-way correspondence/correspond doubly* in the polarity [T.N. i.e. they have a unique reciprocal relationship], then they are respectively said *pole p* and *polar P*. If the second of the two points lies on the polar of the first, the first will lies on the polar of the second: the two points are said to be conjugated or reciprocal in polarity. *One/a* point is *called/said to be/defined* self-conjugate [T.N. or commonly, absolute] if it lies on its own polar.

A polarity is represented by equations *of/in* the form:

$$(1) \quad \begin{aligned} pu &= a_{11} x + a_{12} y + a_{13} \textcolor{red}{x} \\ pv &= a_{21} x + a_{22} y + a_{23} z \\ pw &= a_{31} x + a_{32} y + a_{33} z \end{aligned} \quad A = \begin{matrix} 1 \\ 0 \\ 1 \end{matrix}$$

The condition *when/where* two points $P(x, y, z)$ and $Q(x', y', z')$ are conjugated in the polarity «(1)» is found/met *expressing/defining/stating* that Q lies on the Polar P , that is:

$$\textcolor{red}{v}x' + \textcolor{blue}{v}y' + \textcolor{teal}{w}z' = 0$$

where u, v, w are homogeneous Plücker coordinates and x', y', z' are homogeneous Cartesian coordinates.

Changing u, v, w with the expressions «(1)» we have:

$$a_{11}xx' + a_{22}yy' + a_{33}zz' + a_{12}(xy' + x'y) + a_{13}(xz' + x'z) + a_{23}(yz' + y'z) = 0$$

By setting $x = x', y = y', z = z'$ we have/there is the condition in order to have $P(x, y, z)$ self-conjugate, which means it lies on its own polar.

The locus/loci of the self-conjugate points of a polarity is a curve of the 2nd order given by the equation:

$$a_{11}x^2 + a_{22}y^2 + a_{33}z^2 + a_{12}xy + 2a_{13}xz + 2a_{23}yz = 0$$

which is the *fundamental equation of polarity/fundamental polarity equation*.

Extending the space, a quadric (with/that has/having a? non-zero/non-null discrimination) determines/establishes/set/make up a correspondence the? in space/in the? space a correspondence, which transforms every point of/in/to its polar plane and every plane of/in/to its pole; in particular, each point of/in the quadric corresponds to its tangent plane, and vice versa.

Circle inversion or transformation by reciprocal radii [T.N. with respect to a circle]

If the fundamental equation of the polarity is a circle, we have the quadratic transformation called/known as *by reciprocal radii*. Given a circle with center O and radius r , to each point P external to the circle corresponds that/such point P' of the line OP that makes $OP \cdot OP' = r^2$ (even/also/as well as/ in the? sign as well/also?). P' is the intersection of the line joining the two points of contact of tangents drawn by P to the circle with the straight line OP . The correspondence between P and P' is mutually reciprocal and bijective except for P when coinciding with O , point to which no finite point corresponds, or the conventional point (∞, ∞) , that is, points of the plane at infinity (see «Procedure of Inversion»).

Between $P(x, y)$ and $P'(x', y')$ and $r = 1$ the following formulas are applied/true:

$$(2) \quad x' = \frac{x}{x^2 + y^2}; \quad y' = \frac{y}{x^2 + y^2}$$

The inversion does not change the angles, i.e./which means it is *isogonal* or *conformal*.

If the point P describes a curve, the inverse point P' describes an *inverse* curve of the first one?/previous.

The inversion of a straight line is a circle.

If the straight line passes through O , then it has itself as inverse.

By inversion every circle transforms in a circle or in a straight line if the primitive circle passes through O .

With a procedure analogous/similar to that/the one already applied for a plane we have for the sphere (particular/special/specific/ quadric) an obvious extension of the «(2)» to the third coordinate z . The inversion transforms spheres into spheres, etc.

Thus/therefore, inversion is a projectivity (or *product/result of a?/the? projectivity/homogeneity // homogeneity/projectivity result/product // projective/projected/homogeneous product/result*) which, by means of/through «(2)», allows to ascend/go back/rise from the external space to the internal space/one of a circle (or sphere). We will call/define/name *cosmic* this *projectivity* that, similar/similarly/likewise to the projectivity of the mirror/projectivity in the mirror/mirrored projectivity, lets/let's/allow/permit us interpret the external space as apparent Euclidean space and internal space as the? real space.

If we apply the «(2)» to the transformation of the Universe, that appears flat to us, Universe made? of /by straight, we can? ascend/go back/rise in? the real Universe, projected, per l'appunto, on the flat space, abstracting from metric properties.

Assimilating/relating/equating the ellipses (orbits) in/to circles, the figure of the Cosmocentric Universe (see)² is just/it is none other than the result of the transformation from the apparent Euclidean heliocentric universe (see) into the real universe, remaining on/considering the observation data.

Chapter II

THE ELECTROMAGNETIC FIELD

In the previous chapter we developed the transformation by reciprocal radii. Geometry should not be confused with physics; it is all abstract. Now we **will/are going to** see what is the starting point that allows us to *apply* geometry to a very well-known physical fact.

The tribute goes to Maxwell for the discovery of the nature of light and the laws **that govern it**. Let us now examine the experiment of the *magnetic spectrum*, of which Table III is an illustration of.

On the North and South poles of a magnet is placed a sheet of paper, stretched on a **loom/flat** structure/**framweork**, then a **bit of/little** iron filings is sprinkled over it; then the orientation is facilitated by tapping lightly on the paper. You will see the filings arranging as curves (lines of force) as shown **in?** the figure.

The figures obtained in this way have the name of **magnetic spectra**; their appearance varies with the distance and with the quality of the considered magnetic poles and with the shape of the magnet.

Maxwell (1813-1897), with his famous equations, proved that the lines of force of a magnetic spectrum are of an? electromagnetic nature, in the sense that the apparent variety of the magnetic fields is attributed/connected/tracked back to a single **genesis/origin/birth** of the atomic physics, according to which *magnetism is always electromagnetism*, which means its due to electric currents (electrons in motion).

Given the electromagnetic nature of light the electromagnetic lines of force of the **aforementioned/aforsaid** magnet also highlight the electromagnetic behavior of light **in the presence** of two poles: **so/therefore** the light travels along curved lines.

With Maxwell the *electromagnetic field Theory* is born; in 1886 Heinrich Hertz demonstrated, using his oscillator, the existence of electromagnetic waves, confirming Maxwell's Theory. The behavior of light, described by the great Scottish physicist through mathematical formulas, becomes an experimental phenomenon, real, physical. The «**visible**» lines of force/lines of force «**visible**» in the iron filings, in the presence of two **opposite** magnetic poles, constitute the *magnetic spectrum* (Table III),

By the procedure described in ch. I we have obtained the **inverted image/picture** of the classical universe: let's remember that the inversion **involves/implicates** the constancy of angles, so if we apply to Tav. XIV to the inversione for mutal radius vectors, we get Table XV, a result that is identified with the physical phenomenon of the magnetic spectrum. «*Hypotheses non fingo*» said Newton, *I do not construct hypothesis*.

The physical identification of Table III with Table XV is evident with the important result that the *classic universe inverted recalls us?* the **physical image/image of the physical** electromagnetic field from/of/by Maxwell's theory.

This new cosmology is founded on **this/such finding that/which** allows to see objects, people, the Sun, the stars along curved lines **receiving** our retina the *identical* image of who **is observing/observe/observes** the sky supposed exospherical with the conviction that light **transmits/is transmitted in a?** straight line.

In Table I it is shown the shape of the Earth according to the classical theory, that is the Exospherical Theory, based on the hypothesis that the light ray which **leaves/start**s e.g. from the Sun and reaches our eye propagates in a straight line, with the **alleged/pretended/presumed** «*finding*» that the Earth is convex, and therefore the Universe would be exospherical.

However, if we start from the hypothesis that the light ray which **travels/leaves/start**s from the Sun and reaches our eye **is propagated/propagates** *in a curved line*, then? we can equally? ascertain/it can be equally? ascertain with equal right the *concavity* of the Earth.

The two interpretations, **only?** from the optical point of view only, are equally valid for the fact that the two light propagations are the result of an *isogonal and conformal* geometric transformation **and so** the image of the

celestial body appears to us in the *same way*: the telescopic view/vision/sight.

It is about establishing *which* of the two *identical* perceived images corresponds to *our/the* physical reality. This is what we try to see in the following pages.

Chapter III

THE LIGHT-YEAR AND ITS PHYSICAL IMPOSSIBILITY

Before we enter into the heart of the topic, I would like to repeat some concepts on our vision, already developed in my book: II The problem of space and the Conception of the World.

The phenomenon of vision must be examined in its two fundamental moments: the reception, by the retina, of luminous radiations and the vision process properly operated by the optical centers of the brain.

The first moment is well known: the luminous radiations penetrate through the pupil, until they reach the retina, which it is the most noble part of the eye. The retina derives from the nervous tissue and represents the sensory portion of sight, that would be, in a camera, the sensitive film; it has the shape of a segment of a hollow sphere and extends from the exit of the bulb's optic nerve till the pupillary orifice; it is not uniform but undergoes profound modifications that allows it to be divided into two fundamental portions: a posterior one, which presents the characteristics of the sensory organ, having the ability to transform luminous energy into an nervous impulse, and an anterior one without these characteristics.

The retina has a layer of sensory cells made up of cones and from the rods and a layer of ganglion cells capable of transporting the nervous impulse produced by the cones and rods to the upper nervous centers, where the sensation of vision is elaborated. This last layer, which is the cerebral part of the retina, is kind of a part of the brain, which selects and leads all the impulses derived from sensory cells. This is the second mentioned moment: the elaboration made by the optical centers.

The psychic mechanism with which the images received from the retina are transmitted outside, it is not yet known, as well as many other brain functions, such as hearing , smell, taste, and touch, that constitute subjective brain responses to stimuli coming from the outside. This circumstance leads to a consideration of the highest importance: the images we see, are a mental product: we prolong in straight lines the radiations that are processed by the brain.

Projectivity of the mirror: apparent space and real space

An example of this process is constituted by the images in a mirror. An object that projects on a reflecting surface, appears in a different place then in reality: the light radiations start from the real object, arrive on the

surface of the mirror, deviate as described by Cartesio's law from the straight line and penetrate our eye, which, due to the mental and psychical process, prolong the straight line radiation that reaches us.

And we see object "inside" the mirror! This phenomenon, happens also when we look at a photograph; the photographic camera imprints on the plate not a movement but an instantaneous image of single individual frames starting from an infinitely small initial place and therefore its always the brain of the observer that interprets the phenomenon.

We therefore have an apparent space with straight lines of vision, and a real space, seen along the actual radiation route, which is what the sense of touch and movement allows us to observe. There is a relationship defined by rigorous mathematical formulas between the apparent space and the real space.

Kant said, "The head is in space and the whole space is in our head".

Cosmic projectivity: apparent space and real space

A similar process can be attributed to the observation of the cycle, from which we receive information via

the radiations that come from it, we perceive them and mentally we extend them in a straight line. We will now propose a different interpretation of the sky from the traditional one, driven towards the search of more reliable explanations than the ones given by the classic science of the universe, as for example, having to admit to the unlikely phenomenon of the duration of billions of lightyears at a speed of 300,000 km per second, with wave lengths 0.4-0, 7 microns and a frequency calculated from 400 to 700 billions of oscillations per second. We formulate the hypothesis of a real space projected onto an apparent space (conceived by the mind) similar to the phenomenon of the mirror, where space is projected onto an apparent flat space, reflected by the specular surface. This projection of real space into the apparent space (mental) has the characteristics of the projections of a real object on the mirror surface: preserves the angles and it changes the verse. The apparent sky, like an object projecte in the mirror, preserves the angles and changes the verse of the real sky, it is an inversion or geometric conform correspondence, called transformation by mutual radius vectors, as I have shown in other writings. By applying this geometric transformation to the physical universe, the luminous radiation perceived by the eye follow curvilinear paths, so the celestial bodies observed are apparent rather than real, as they are located along the straight tangents to the curves traveled by the rays of light that continually strike our eyes. We see celestial objects on straight tangent lines, that is in a (mental) space where the lines of the universe are rectilinear (Euclidean space). The real cosmic space field is analogous to the space determined by the poles of a magnet on iron filings sprinkled on a sheet of paper with its curved electromagnetic characteristic (Maxwell).

Geometric distances and the duration of light

A year-light corresponds to the length of 9.463×10^{12} km = 9 billion and 463 billion km, which would be the distance that light, animated at the constant speed of 300×10^8 m / sec, would travel if it could have the duration of a year. This route, considered "straight" is the unit of measurement with which astronomers calculate {do not measure} the distance of a star.

We must direct the attention on the meaning of the word distance and the word light. Distance is the geometric space between two points. Light is a union of discreet elements called **physical quanti** (photons) or particles of energy animated by velocity.

Along a geometric distance, a physical train of countless photons, distributed unevenly (Maxwell's electromagnetic theory).

A distance is measured by the geometric unit known as meter, whose sample (international meter) consists of a platinum ruler, housed at the Museum of Arts and Crafts of Paris is equivalent, with much approximation, to the 40 millionth part of a terrestrial meridian.

to calculate the distance of a star, astronomers coincide the geometric measuring unit with the physical measuring unit of light (k photons) as if they were compactly distributed.

The year-light comes from the fact that triangulating the distances of stars, the sides to calculate are assumed to be rectilinear, and the distribution of the photons are assumed to be uniform, connected to the physical impossibility of the exterminated durations of light itself, as we will now show.

But first, lets specify with an example with our ordinary measurements or distance calculations, how a beam of light radiations, starting from the source, fades with distance because of the divergence of the rays of each couple, as well as the less compactness of the photons of each single ray.

For example, if a light source has a geometric distance of 10 meters away from me, I assume as a constant geographic measurement a meter; but if I assume a physical constant unity of measurement, e.g. 100 million photons (light quantum), in the first part (let's say 1 cm) of the light beam, 100 million photons are contained, but this second part is geometrically long half the size of the first and so on halving photons in each part. Photons are more compacted as we get towards the source (which means they distribute in a not compact and not uniform way - Law of Lambert). Therefore assuming my physical distance from the source the physical constant unity of measurement of 100 million photons, with innumerable halves just about endless, while my geometric distance remains finite (10 meters). We conclude that the physical-geometrical distance earth sun in the classic measurement system is of 150,000,000 physical-geometric kilometers; while in the Endospherical Theory, since for each exospherical constant rectilinear kilometer correspond arches/arcs that are always more and more shorter towards the source, there are still 150 million Km. but with a physical meaning, since it consists of photon trains, not exceeding the geometric paths of sunlight and stellar light 10,000 geometrical km with a presumable duration of hours of the path of light, not of years. To the **half-straight** <rectilinear solar

rays» corresponds in the transformation by mutual radius vectors, the semicircle «curvilinear rays».

At the «increasing» geometric kilometer transformed starting from the source, on the semi-circle corresponds a kilometer (with physical meaning) decreasing in accordance with the physical law of light intensity inversely proportional to the distance from the source. It could be said (to understand) that the lengthening of the geometric km is compensated by the decreasing intensity of luminosity. making the geometric distance of a ray coincide with its decreasing intensity of luminosity is at the root of the year-light.

If you want to measure the length of a river, we will use the metric system; but our result has nothing to do with the quantity of water flowing in the river, just like the distance of a star has no relationship with the quantity of photons that runs through it.

Distances are geometric entities; the rate of water flow and the photon train are physical entities.

The law of distances

The intensity of illumination of a screen is inversely proportional to the square of the distance from the source.

In fact, the amount of light that starts from a luminous point O falls on the ABCD square, doubling the distance it would fall on the A' B' C' D' square with the length of the side doubled and so the area is four times greater than the first. Therefore the amount of light that would fall on A' B' C' D' would be the same as that the one that falls on ABCD but with a lighting intensity of $\frac{1}{4}$.

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The brightness, or the intensity of luminosity of the surface unit, with double the distance its $\frac{1}{4}$, with triple the distance would be $\frac{1}{9}$, etc.

The intensity of illumination is directly proportional to the intensity of emission and to the cosine α made from the normal to the incident ray to the surface hit and inversely proportional to the square of the distance from the source:

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(first law of Lambert's cosine).

At given distances of meters 3, 4, 5, etc. the intensity of luminosity produced by a source decreases by 9, 16, 25 times. In the figure two rays of light coming out of the source in a given moment are separated by the arc AB, and in a later time by an arc A'B', etc. Light spreads throughout the spherical space; every spherical surface receives the same quantity of light, but with the luminosity intensity on each meter squared is decreases in the inverted order of the square of distance. When it reaches values of millions of kilometers the intensity of lighting rapidly decreases tending to zero, until it became totally extinct. The same quantity of light emitted by the source illuminates an extended sphere $4\pi r^2$ where the growing radius of each sphere is showing squared. If the radius of the sphere is 1000 km, the surface is irradiated is 12 times 1,000,000 of kilometers squared; if r is equal to 1,000,000 km, the spherical surface will be of about 12 million km squared. If r is equal to 150,000,000 km then the illuminated surface has the extension of thousands of billion kilometers squared.

In the figure you can see for example the AB arc, the A'B' arc and the A''B'' arc. These three arcs are sectors of circumference; the corresponding spherical surfaces receive each the same illumination, whose intensity, as the extension grows, is rapidly attenuating the inverse ratio squared the distance until extinct.

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For the classical theory the nebulae whose light would take 200 million years to reach Earth, would be at a distance of 2,000 trillion kilometers: which is: 2,000,000,000,000,000,000 (21 zeros). The fabulous duration of the propagation of light rays (light years) is not the result of experience, but it necessary consequences of the premises from which the classic astronomy are built, and that is: Euclidean cosmic space, convex earth and the attribution, extrapolating, to the cosmic space the characteristics of our terrestrial space. The light from the Andromeda nebula would take 2 million years to reach us, and the light from even more distant galaxies two billion years. Light which is calculated with a frequency between 400 and 750 billion vibrations per second, formed by each ray made by a tenuous "strand of energy" in motion with a velocity of 300 thousand kilometers per second is just illusory that it could have the duration of billions of years!

The velocity of light

The speed of propagation of light (electromagnetic waves in a vacuum) is assumed as a fundamental universal constant and it is usual to indicate with C, even thou the escape velocity of a quasar is hyper-c.

The first determination was made in 1675 by the danish astronomer Olaf Roemer that I calculated the period of Jupiter's satellites in different times, obtaining different results. Knowing the difference of the distance and the time taken to travel it (about 1000 seconds) Roemer calculated the speed of light to have the value of 307,200 km / sec.

The determination of the speed of light, performed by James Bradley in 1728 based on the aberration of stars, brought equal results (except for negligible differences); the same for other researchers such as Anderson, Essen, Bergrastrand, Alakson. These calculations are based on the hypothesis of a rectilinear propagation path of light.

The concept of the velocity of light in the heliocentric system as well as in the cosmocentric system needs to be clarified. In the endospherical system the distance and the length of a rectified curvilinear trajectory, whose geometrical measurement unit (meter) does not coincide with the physical measurement unit (k photons). This physical unity of k photons is not known, it is not calculable, therefore the travel time of the physical body k photons is unknown. Therefore the speed of light can not be calculated.

The average diameter of the molecules was calculated, with various systems, reaching a value in the order of some Angstroms (1 Angstrom = 10 **(alla potenza di meno 8)** cm), which is a ten-thousandth of a microm; the classic Earth-Sirius distance resulte of 9-light-years; these assessments however, can not be accepted because the photons of a ray of light, unlike traditional assessments, are not evenly distributed; photons or quanta of energy do not travel compact but distancing until cancelled out of their action (figure V) long before reaching the observer.

The concept of heliocentric velocity is referred to physical-geometrical light paths with a costant unit of measurement, instead, in the cosmocentric system the same concept is referred to variable geometrical unit of measurement, containing in each unit of geometric measurement the constant physical quantity of k photons. Light, as it travels an enormous amount of variable geometric units starting from the source, it fades until it tends to zero. This path implies a variable time not calculable, but likely very short in the geometric vicinity of the source, but gradually growing as it travels towards the terrestrial observer.

The Cosmocentric Theory formulates the hypothesis of variable path travel time from the source to the observer, keeping in mind that illumination, as already mentioned, is inversely proportional to the square of the distance.

The calculation of C was carried out in the hypothesis of a constant time with a constant path units. From these hypotheses we have got the classic value of C even in the depths of cosmic space, even though Lambert's law leads to a progressive dimming of lighting intensity up to its cancellation, much before reaching the terrestrial observer. As far as Fizeau's famous experiment is concerned, the velocity of light was indeed constant, but obviously for a duration of fractions of a second that followed the instant of the imission of the light, whose round trip journey from Suresne to Montmartre, was only of $8,633 \times 2$ km = 17.266 km. Therefore, taking into account what has been previously said, it's absurd to assume for the speed of light the value of constant C for durations of "billions of years". The year-light is therefore absolutely impossible.

Chapter IV

FLAT SPACE AND CURVED SPACE - IPERSPACE - SPECIAL RELATIVITY AND FINAL RELATIVITY

With the forthcoming of the Einsteinian theories, new cosmologies have emerged.

From Newton's classic Universe, followed Minkowski's; the non-static (pulsating and hyperbolic) universes of Friedman arose; Einstein's General Relativity System, Fantappiè introduced his Final Relativity using De Sitter's the model; stationary cosmologies proposed by Hoyle and BondiGold, evolutionary cosmologies by Gamow and Lemattre.

To this harvest of theories we can associate fundamental problems like the meaning of hyperspace and the curvature of space and time, the problem of reality or appearance of phenomena predicted by relativistic theories, the meaning of static and of expansion, the model of the Universe, the concept of relativity and Einstein's theory of gravitation, and now dwelling on the distinction between relativistic conceptions of theoretical Universes with constant curvature based on the group theory and the conception of the real Universe with a variable curvature, not linked to this theory.

Hyperspace

To explain what a four-dimensional space is, they have recourse to various expedients, the most significant and close to intuition being that of the **biamimale** that, linked to a two dimension space, can not imagine a three dimensional space.

Similarly, it is said, a three-dimensional being, bound to a three-dimensional space, can not conceive of a four dimensional space. This **accostamento** between the behavior of the **biamimale** and that of the three-dimensional being, appeared to have satisfied intuition's needs.

But has the intuition remained really satisfied? A brief reflection suggests a negative answer. However, we can ask our selves if such a problem really exists or if there is the hidden mistake of confusing geometric abstraction with physical reality. Space at n dimensions in geometry is very well known and it does not need to be illustrated. What needs to be investigated is why we talk about physical space with more than three dimensions. Among the first responsible for this is Minkowski, who, with Einstein, introduced the term "four-dimensional" to indicate the real space-time.

It is true that those authors were concerned with specifying that the three spatial variables x , y , and z and the temporal variable t could be fused but not confused, but this has not prevented how the most famous texts still linger to illustrate the events of the **biamimale**.

The idea of the geometric representation that Minkowski has given to the Special Relativity arises from observing Lorentz's transformation that operates in a similar way on the coordinates x , y , z and on time t ; from which the opportunity to interpret mechanical phenomena, rather than in ordinary space, in a four-dimensional approach in which time functions as a fourth coordinate. However, since in space-time it does not happen at all that to a three-dimensional being presents the problem of understanding the fourth spatial dimension, its completely out of place, in this context, consider the **biamimale** not having the possibility of conceiving the third dimension, and that is because in the real space-time, the spatial dimensions are three and should not be confused with the temporal dimension that has a similar character to spatial ones only in the geometric representation: in reality space and time cannot and should not be confused.

It is known, in rational mechanics, that inertia's ellipsoid is a geometric representation of moments of inertia,

but it is only an interpretation: insisting on the **biamale** events aforementioned is equivalent to believing that the ellipsoid of inertia, instead of being a mere geometric interpretation of moments of inertia, "we enmeshed". A convenient proposal could be that of not using the term "four-dimension" when referring to the real world: it will be granted to me that this suppression saves conceptual obscurity and unnecessary efforts for those who enter the quicksand of relativity.

About the Minkowski diagram, Straneo reveals that «soon we forgot the original diagrammatic and was almost generally attributed an absurd reality to this representation ... the hypothetical continuous became a simple four-dimensional space ". But to the enigma of the "spatial fourth dimension" we associated it with the curvature of space and time.

Curvature of space and time

To explain this "mystery" as well, known authors have resorted to similar approaches to the previous ones. As a plane curves into a three-dimensional space, it's explained, that a three-dimensional space "curves" into the fourth dimension. But not only space "curves", but also time! What a "curved time" means, no one knows, nor will never know, except perhaps, the authors, the critics and the merchants of 99 percent of abstract paintings.

Here too let's impose the strict distinction, recommended by Veronese, between geometric representation and reality. Until we remain in the interpretative field offered to us by analytic geometry, space-time can assume the suggestive aspect of a cone (Minkowski), a cylinder (Einstein) or a hyperboloid (De Sitter).

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To allow tracking of Einstein's chronotope (fig.1) the spatial coordinates are reduced to two (circumference) since the third coordinate is time. In De Sitter's Universe representation (fig.2), the third coordinate, being the expanding space, is curved. As you can see it is not the "curvature" or "flatness" of time, but simply its geometric representation, which is sensibly much more understandable.

As for the "curved space" it is necessary to distinguish: 1) the geometrical space, which is flat if the Pythagorean theorem is valid (Euclidean geometry); curved if, on the other hand, the Pythagorean reaction is not valid (non-Euclidean geometries); 2) the physical space, which is defined: flat, if admitting the hypothesis of straight propagation of electromagnetic waves, for the description of natural phenomena, Euclidean geometry is applied; curved if, admitting a curvilinear propagation of light, for the description of natural phenomena, non-Euclidean geometry is applied.

Newtonian space is flat because the trajectory of light, supposed straight (in a Euclidean sense), requires the application of Euclidean geometry; Einstein's space from general relativity is curved because the electromagnetic gravitational waves undergo the action of the gravitational field and therefore the geodesic traveled by light, being non-Euclidean, requires the application of a non-Euclidean geometry.

So, depending on the physical theories adopted to explain nature's phenomena, we apply a type or another of geometry: it's the type of geometry we apply that makes us define physical space as a plane or curved (in Euclidean sense), which is the array of material bodies and of energy fields that constitute the space.

It makes no sense therefore to consider the curvature as an intrinsic characteristic of physical space. To say that "space or time or space-time is curved ", and worst, "curves " it's an expression which should be abandoned to the advantage of **rigore**, precision and clarity.

Reality or appearance of the phenomena predicted by relativistic theories

The problem perhaps most discussed, linked to the transformation of Lorentz, is that of variation in lengths, duration and of the mass of the body as a function of its motion.

These are real or apparent phenomena? First of all, we must specify what we mean by real and what we mean by apparent.

If an observer K sees before him a **regolo** travelling with uniform rectilinear motion at a velocity, with respect to him, comparable to that of light and proceeds to measure its length, the result of the measurement carried out (with only optical means) differs from a similar measurement carried out (with tactile means) from a different observer K', solidly with the **regolo** and precisely the length l obtained by the first observer will be inferior than

the length l detected by the second.

We will have, based on the Lorentz's transformation.

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where v is the speed of the **regolo** and c the velocity of light. To the observer K the **regolo** appears shortened. What does this mean? It means that the length measured by K' travelling solidly with the **regolo**, is true: K detects a shortening of this true width, which means he detects an *apparent* length.

This is the crux of the matter and so was considered by Enrico Fermi, Straneo, Castelnuovo and from many other scientists: this has not prevented and does not prevent however to discuss this problem that the same invertibility of Lorentz's equations protects from any doubt. Indeed, if it was K' to judge the length of a **regolo** identical to the first but now solidale with K, it would be K' to detect for this **regolo** a shorter length than the one detected by K.

From this it follows that the travelling **regolo** with a uniform rectilinear motion in a supposed pseudo-Euclidean space (with the only physical use of light) as empty as Euclidean space, the **regolo** really does not shorten at all, it does not undergo any contraction inherent to its molecular structure, as erroneously thought at first Lorentz himself, then changing his mind in a definitive way.

It is therefore concluded that the true length is the one measured mainly with the intervention of touch (tactile space), while the apparent length is the one measured with the intervention only of sight (optical space). I will omit a similar reasoning to be done for the "dilation" of time, a phenomenon purely apparent.

These fundamental notions and findings must be always kept in mind when considering events from a relativistic point of view, with the use, that is, of founded transformations on the group theory, such as Lorentz transformation on Special Relativity and other relativistic transformations, including in particular, Fantappiè's on Final Relativity, developed by Giuseppe Arcidiacono.

The journey imagined by a distinguished physicist, P. Langevin, is famous; he supposed that one of two young twins travelled with fantastic velocity from Earth, pushing himself up to a distant star and returned with the same inverted velocity on Earth to stop there.

Assuming the translation velocity v sufficiently high (next to that of light) the twin who had travelled would have returned still a child, while the other twin that remained constantly on Earth, should have been grown old! That this is just an absurd paradox is proven by the fact that by the invertibility of Lorentz's transformations, its the travelling twin that on his return would find still young the twin that had remained on Earth.

We must add the serious circumstance about the unlawful use of Lorentz's formulas that only provide for uniform rectilinear motions (otherwise the transformation would not leave it unchanged even the form of the law of motion), while the travelling twin, reversing the route for the return, is animated by an accelerated motion.

The problem of reality or appearance of phenomena in the Theory of Special Relativity should be considered in a similar way in the other relativistic theories based on group theory, in particular in Final Relativity.

The unification of the electric field and of the hydrodynamic field has an apparent and not real character, because it depends on the distance from the observer. «it must happen, writes Arcidiacono, that a purely hydrodynamic phenomenon, which occurs on a distant galaxy, will appear, due to the distance, of magneto-hydrodynamic nature. At small distances from the observer ...the electromagnetic field and the hydrodynamic field result independent of each other. At long distances instead ... the two fields come to merge intimately, through the constant universal r , in a single magneto-dynamic field ».

If a conductive fluid (eg, mercury) or a ionized gas (plasma) are immersed in a magnetic field, a coupling between electromagentic field and hydrodynamic field is born, in the sense that a hydrodynamic motion gives rise to electric currents, which, in turn, generate actions that will alter the motion of the fluid.

If, although , the hydrodynamic field and the electromagnetic field are independent from each other (the first, that is, not immersed in the other) and yet to a distant observer the phenomenon presents as magneto-hydrodynamic, it is evident that it is not a real phenomenon, but only an apparent phenomenon.

This clarification around the problem of reality or appearance of the phenomena predicted by the relativistic theories developed by the theory of groups scheme of rigid movements, highlights the fundamental character of these theories, which is the fact that their genesis is linked purely to mathematical needs, as Arcidiacono warns regarding Fantapptiè's Relativity and as Straneo warns (1, page 81) regarding Special Relativity.

It is in fact known that, to write a transformation that he gave reason of the experimental results obtained by Michelson-Morley, Poincare, wanting to get a transformation that was not just an approximation

like the one Lorentz had found, but wanted it to be exact, he used the mathematical theory of groups, based on which he could strictly demonstrate that the only transformations that would leave invaried the shape from optical laws, were given from certain equations where size would be figured and determine based on some particular condition the problem that was given. In the search for a uniform transformation law, that would leave unchanged the form of the fundamental electromagnetic laws, the aforementioned equations are applied to the experimental case of Michelson-Morley, and equalizing the results can be used to determine the numerical value of the constant.

Setting FORMULE MATEMATICHE DA AGGIUNGERE, with v = translational velocity of the system in any case is found for c the value of the velocity of light.

So the constant c was born from a mathematical need to give reason for some phenomena. Whether it is about theories that associate to the simplicity of mathematical formulas a structure of the world much simpler and schematic than the real one is also proven by the fact that, for example, while the value is unsurpassable in Special Relativity, in Final Relativity the velocity of light is no longer a speed limit, while the new limit of r/c is presented.

All this does not mean that the transformations of Special Relativity, within the limits of their validity field, represent a very valuable tool in science: the modern gigantic machines, which are used in nuclear physics laboratories for the purpose of high-energy particles (synchrotrons, betatrons, etc.) production, must be designed, so that they can function, based precisely on the laws of Special Relativity; and we can very likely expect very useful applications from the reports of the other theories based on group theory as well.

But when we pass from the effects predicted by the mentioned relativists relations to an objective structural vision of the real universe (cosmology), then we must abandon the abstraction from the relativistic theories of a space-time with constant curvature based on the theory of groups of rigid movements (rotations, translations), to introduce into our equations data of the real space, which has variable curvature: this is what Einstein did in his General Relativity theory, where the considered space is the real space, at least in a first approximation, that is, a gravitational space.

"The gravitational field by Einstein deforms my rigid regoli ". In the Endospherical Theory we consider a space, which is even closer approximation to the real one: it is other than gravitational, also electric. The variable curvature (with the consequent non rigid motions) of the General Relativity universe is tied to the presence of matter, just like the curvature of the Endospherical Universe is tied not only to the presence of matter (gravitational actions), but also to the presence of the sources of an universal electric field.

We must specify the significant difference between Einstein's curvatures and those in the Endospherical theory's: the first are negligible, being linked to the gravitational field only, while the second are linked to both the gravitational field and the electromagnetic field; the first have a radius of curvature of billions of Euclidean kilometers (the limit of the Universe is approximated to a flat plane) while the other have a radius of curvature not more than 6370 Euclidean kilometers (the terrestrial radius).

Chapter V

"RELATIVISM" AND EARTH'S "PRIVILEGED" PLACE

"Relativism"

An objection that has been raised against the Endospherical Theory is the following: the hypothesis of the curvilinear propagation of light (field theory) can be done, other than by the terrestrial observer, also by an observer from any other planet, for example, from Mars. He too could represent to be in an endospherical universe, of which the concave surface of Mars would constitute the side dish. It is absurd, therefore, to think that the cosmocentric universe is real, because otherwise they would have equal rights to be considered real the different universes observed and, like that, interpreted by the observers of the various planets. It is therefore about pure abstractions, of pure mathematical structures, which can not respond to our physical reality!

So far this is the objection.

We will immediately observe that the hypothesis of the existence of an inhabitant on the outer convex surface of Mars is made in analogy with the inhabitant on the supposed convex terrestrial surface; in other words, the hypothesis that Mars is inhabited immediately implies a second, which is the hypothesis that the surface of Mars is inhabited externally or internally. The first hypothesis is made by analogy with Earth, whether concave or convex; the second hypothesis, which it implies, is double the analogy: if we suppose that the surface of Mars is inhabited externally, it is done by analogy with the convex surface of Earth of the classic system; if it is supposed instead that the surface of Mars is internally inhabited, this is done by analogy with earth's concave surface of the cosmocentric system.

The above objection therefore implies the following circumstance: the objector starts from the implied statement of inhabiting a convex surface of Earth, from the affirmation, that is, that the system of the Universe is the traditional one and therefore it concludes that the hypothesis of the curvilinear propagation of light is a pure hypothesis to which a real physical law can not correspond, even if it satisfies a coherent mathematical structure of the Universe.

It follows from this that such a hypothesis of a curvilinear propagation of light can be formulated, and only as a mere intellectual exercise, even by an observer located on the external convex surface of Mars.

The objection in question, is therefore spoiled by a prejudice, that which the Universe has certainly the traditional structure: briefly, its objected to the cosmocentric system supporter that the Universe is not cosmocentric, but Copernican.

So this is not a real objection, because follows from the assertion that the true system of the world is the classical one: to be a real objection, the argument raised should be independent of any concept of the universe, be it Copernican or cosmocentric, so as to show that an argumentation by itself carries to affirm the validity of one or the other of the two systems. Instead it is pretended to proceed in the exact opposite direction: in fact, with this objection leads to a convalidation of one of the two systems, but one of the two systems, prejudicially stated as the only real, and leads to the objection!

Then follows the obvious admission that the supposed observer located on a "certainly" convex terrestrial surface can represent himself in an endospherical universe but *certainly* abstract, *certainly* not corresponding to the real world; it's the same thing can be done by the hypothetical inhabitant of Mars, situated by analogy with earth's surface, on the outer surface of that planet.

Both observers, the terrestrial and the Martian, could do the same thing and say: I'm located with certainty on the convex surface of my world, but I can build abstract structures, mathematically valid, certainly not corresponding to the reality, although they do allow me to configure in my fantasy a hypothetical enclosed universe by hypothetical concave walls of the surface on which I stand.

To the hypothesis of the inhabitability of Mars by analogy with Earth's surface can be associated another hypothesis, which is that of the Martian observer, again by analogy with the terrestrial surface, not already on the external surface, convex, of his globe, but rather on the inner, concave surface, when we start considering the Endospherical Theory of the Universe.

The objection posed at the beginning is spoiled by the fact that there are two opposite hypotheses mixed: the Copernican hypothesis and the cosmocentric hypothesis.

. Its not warned in the objection that it is tautological to start that the Copernican system leads to the ... Copernican system. The preliminary prejudice rules out that how cosmocentric universe hypothesis could correspond to reality and therefore the objection that is believed to oppose to the cosmocentric system is pleonastic, superfluous, because the prejudice that the universe is certainly not cosmocentric, precedes the objection itself.

In this objection, only the Copernican hypothesis is considered: the two hypotheses are not impartially compared.

The hypothesis of a rectilinear propagation of light leads to the assertion that living beings inhabit the outer surface of both Earth and Mars (admitting the habitability of this planet).

The hypothesis of a curvilinear propagation of light (theory of the field) made by the terrestrial observer, leads to assert that living beings inhabit the internal surface of both the Earth and Mars (admitting however the habitability of this planet). The analogy with Earth (and not the observer), which lead the scientist to make the hypothesis of the habitability of Mars, must be conducted to the end, without mixing the two opposed hypothesis.

The terrestrial and Martian observers are both ether external or internal to the surface of their world and this is because the only reason that led to the hypothesis of the habitability of the planets is the analogy with earth's surface. No-one ever observed any inhabitant on the surface of the planets: these are only analogical guesses. The objection then placed at the beginning, has no foundation, because, as Poincarè said, "there is no paradox that can not be proved when mixing two opposed affirmations (or hypothesis) in the premises of the demonstration.

Whether it is cosmocentric or not, it must be decided by the consequences of what such admission implies. If hypothesis of the Endospheric Universe involves the explanation of all the observed facts already explained by the old theory, as well as the explanation to even just one weak point of the old concept, then the hypothesis is more valid than the old one, this structure of the Universe is more valid (more true) than the traditional structure of the universe.

Admitting the greater validity of the Endospheric universe, supposing an "external" Martian observer would mean formulating a hypothesis not supported by the analogy, a hypothesis completely arbitrary, without any foundation whatsoever even purely theoretical.

We must although add a further consideration. When the Relativity theory appeared, a violent opposition rose against it.

Men of science, even very well known, launched anathemas against Einstein. Vincenzo Cerulli, then President of the Astronomical Society, spoke of a "degenerative crisis" occurring in the scientific field.

Michele La Rosa wrote: "we feel an exhausting sense of being lost, in a deep and acute discomfort, which comes from the feeling of our bases of our reasoning not being stable." Then things changed. The objections to the Einstein's ideas revealed to be more psychological than rational: to understand relativist ideas, it was necessary to change a certain traditional way of thinking. Once the traditional thought attitude changed in many scientists, Relativity stood out triumphant.

Then, as often happens, we went too over, and what was not said by Relativity, was made into what Relativity said and new absurd "interpretations" were born, like the amiable story of the twins of a physicist, as eminent as Langevin was.

"Relativism" was born, a disordered attitude in the shadow of a theory that has already a huge reach, in both the scientific and the speculative field.

History offers us many examples of these "schools" born on the trail of great masters: "schools" that often distort the high context of the original doctrine. "Relativism" spreads!

The terms and conditions under which its legit to talk about relativity are not respected, and **ameni** but worthless paradoxes arise, interpretations and argumentations apparently suggestive, but without **rigore** in their

premises.

Relativity teaches that for an observer located on a train in motion, the images of the places which he passes , are identical to those he would contemplate as if it was the places to move and he stood still. By omitting, now very important considerations, around the meaning of motion and quiet, it does not seem that one can doubt that its the train moving an not the landscape! Lorentz's relationships are of the highest interest and of great fertility, as we all know, but we cannot get "relativism" sick, falling from the **dalla padella alla brace!**

The "privileged" role of the Earth

A second objection to the Endosphere theory was formulated by a famous French scientist in a letter, sent to me from Paris on January 20, 1961, which reads: «The **geoperiferism** of the Theory restores a privileged role to Earth and this is the reason I do not agree with the theory ».

The critical argumentations to this second objection are similar to those in the previous objection.

Here too, the objection leads to validate one of the two systems, but one of the two systems, prejudicly stated as the only valid one, leads to the objection. By starting from the Copernican System we can eventually talk about earth's privileged role, by admitting that Earth is a "planet" then we cant justify its privileged role in respect to the "other" planets.

If the Earth were a planet, if the system was Copernican, perhaps it would not be justified to give Earth a privileged role.

But what does it mean for our objector to attribute to Earth a privileged role?

It means to be referring to the «role» of Earth of being a place in the Universe, that is, referring to the Cosmocentric system in which Earth is not a planet and therefore it makes no sense to talk about a privileged role.

We return mixing up two opposite hypotheses, which are resolved in a contradiction. In this objection as well we start from the Copernican system to reach the ... Copernican system: pure tautology.

If we can speak about privilege, it's by analysing the classic system itself.

In it, among all the paths attributed to light waves, we must admit the most singular path, is the rectilinear one. Between all infinite lines, the straight line is the most particular case, its the exception, the behavior that clearly distinguishes it from all the other lines; the straight line is privileged among all the possible and thinkable lines for its very particular character, which does not have anything in common with all the other lines: its the the only line that has an infinite radius of curvature in every point.

That the real universe is dominated by a law of propagation of electromagnetic waves so singular, "privileged", its less likely than the opposite hypothesis, which would be the hypothesis were, obeying a certain law, light rays assume at every point and for each direction different curvatures, curvatures which values range from zero to infinity.

There is no reason to link the propagation of light to a geometric law so singular as that of the straight Euclidean line: Euclidean geometry, in the new concept of the world, does not have that privileged role any more as it does in the classical concept.

Another singularity or "privilege" that we find, is in the rigid motions to which bodies are subjected to in the classical system. Of all the possible laws, to which moving bodies can be subject to, from those which imply slight deformations to those that imply **sensitive** deformations, the law of rigid motion is a case on the limit, a privileged case. Nature is not likely to be subjectednto laws of such singularity, but rather to more general laws. If we want to talk about privileged roles, then its by analysing the classical system, where they must be admitted, as a necessary consequence of the structure of this system it self, rigid motions (of the bodies) and rectilinear paths (of light).

Chapter VI

SPACE JOURNEYS - INERTIA

An observation is usually made by those who come across with the new theory: «Based on calculations according to the classical theory, the space probes go just where and how they need to go, returning where and how they need to return ».

Lets now consider that from the American and Russian satellite experiments some important data has emerged:

a) The space between planed can not be considered empty, as Newton supposed. The concentrations of the electrons emitted by the sun lead to consider a greater extension of the solar corona; these electrons must possess energy that corresponds to very high temperatures. interplanetary gas is a part of the solar atmosphere, which is much more than what was first assumed.

b) At a distance of over 5 terrestrial rays the magnetometers of the different satellites have recorded some systematic differences in themagnetic field from the data calculated according to the theoretical magnetic field. In this field, particularly impressive results were recorded by the Pioneer V launched on 6 March 1960, which it reached a distance of 5 million kilometers.

These observations seem to confirm the existence of magnetized plasma clouds emitted by the Sun and travelling through space producing on its arrival on Earth magnetic storms and other geophysical effects.

In a statement released by Tass, the Soviet aeronautics expert Sternfeld on 21 April 1959 announced that the Lunik III had relieved some details in its movement that contrasted Newtonian Celestial Mechanics laws. The various condensations of space energies caused velocity falls to Vanguard I, to Sputnik III and to other satellites.

All this offers justified reasons for criticizing the current Theory of the Universe: Newton's law presupposes empty space, while the latest experiments lead to exclude emptiness. Speaking of «emptiness» Louis de Broglie (Journal de Phisique, dec. 1959) affirmed: «Emptiness seems to us quite paradoxical endowed with important physical properties. M. Bohm calculated a formidable amount of energy, 10^{27} joules per centimeter cubed".

As for the temporal coincidence of rockets round trip, the agreement with the calculations made was not, as many think, exact.

In 1959 the Russians launched the Lunik II, which landed on Sea of Serenity on September 12, 1979. A trip of 381,203 kilometers took the airship 83 seconds more than expected. Using easy calculations, we get an average speed of about 3 kilometers per second. Multiplying 3 by 83 we get 249 kilometers of delay compared to calculations made at the table.

About the affirmed precise concordance therefore, between the forecasts obtained with classic calculations and the actual measurements we must surrender to the fact that this precise agreement has not been verified. On the other hand, consider that often the calculated time and the actual time of train trips do not coincide. But the argument is not limited to this.

Classic space is considered uniform while the endospheric space (electromagnetic field) is not uniform. Regarding the durations of the space trips, it is necessary to keep in mind that bodies moving towards the sky in the endospheric space are subject to a growing intensification of the universal magnetic field, which, by opposing an increasing resistance, stops, delays motion as well as the occurrence of expansion and contraction phenomena.

Einstein used to say; "The field deforms my rigid **regoli**." The velocity therefore varies without this being felt on land, nor from travellers, nor it is easy (if not impossible) to calculate the amount of such delays; however

such slowdowns partly compensate and balance the duration calculations, made assuming a uniform space, because of equivalency (equal mass) between the endospheric and the exospheric space.

The more you go up in the direction of the cosmic space, the more increases the concentration of energy.

The constantly increasing endospheric densities correspond in the classic space to almost null density. From a space on average almost empty (Lammel, Eddington) and lacking of any features (curvature) we go to the natural space of variable curvatures; in any field of nature the straight geometric line (a dimension) is not ever observed.

The two physical systems, connectable by unexceptionable geometric transformations have the *same* mass, but the one has an infinite extension and enormously rarefied matter, the other an immense power and spatial concentration tending to infinity.

Another consideration about inertia. It is stated that spaceships follow many inertial, that is without acceleration. In the new system there can't be inertia in the classical sense. Already the famous Faraday in 1837 gave a new address to the studies of electrical phenomena that occur in the *middle* (either empty or dielectric) attributing to the lines of force ("tubes of force") that are in the middle, a real existence and not a simple value of a geometric representation of the field.

To Newtonian inertia corresponds an endospheric "inertia" that the spaceship follows by the nature of the electromagnetic space, covering the curved lines of the same magnetic spectrum (lines of force that are formed, for example, in iron filings sprinkled on a sheet of paper and placed above two poles of a magnate). As for the joined points (see chapter I) of departure and arrival on earth of the probes, they are the same with the same directions in the two concepts of the world, given the isogonality of the geometric transformation, that is, the angle is the same in the two systems with respect to the ground both in departure and arrival on earth; the probe goes just where it needs to go and comes back where it must return (Table XI).

Chapter VII

THE LAW OF ENERGY CONSERVATION - GROUND DEPTH - SPATIAL CURVATURES

The law of Energy Conservation states that, in no process, energy is created or destroyed, keeping the total energy unchanged (Mayer, Helmholtz, 1847).

The lines of force in the field of a magnetic induction produced by a magnet are directed from the north pole (N) to the south pole (S) external to the magnet, and from the South pole (S) to the North pole (N) internally. In the Endospheric Theory, in the magnetic spectrum, at the N pole we have the Sun and at the S pole we have the Stellar Center.

The universal energies go from the Sun to the Stellar Center conjugated by a magnet (externally) and continue to the Stellar center to the Sun (internally). Energy circulates and this explains the «eternity» of solar energy independent of any eventual nuclear fusions within the Sun. we have a circulation of energy without any dispersion and without any need of recovery phenomenons.

In violation of the aforementioned law of the conservation of energy, in the classical system the energies start from the Sun and the Stars and disperse indefinitely.

Then in Einstein's system, the Universe presents a curvature, even though it is small; infinite and unlimited space of Newtonian cosmology is replaced by a space that is still unlimited, but finite, in the sense that, starting towards a direction we return to the starting point.

Eddington defines the classical space as "empty" by noting that we have on average a Star every 20 parsec, and one parsec is 30 thousand billions of kilometers in length.

So the radius of curvature of Einstein's universe has a length of trillions of trillions of kilometers, while the radius of curvature of each of the lines of force of the electromagnetic space (Endosphere theory), that permeates the universal space, has a maximum length in euclidean terms of 6370 km (terrestrial radius) which is a curvature $K = 1 / r$ enormously more than that of Einstein's Universe.

If we consider the time that the energy of a line of force takes to return to the starting point, the duration is of trillions of years, that is almost infinite; the law of energy conservation appears to be unlikely, this law is instead fully respected in the Endospheric Universe where energy in eternal circulation has a sharp contrast with the huge dispersal of energy from the sun's, the stars and the galaxies in the classic system.

As we can be seen in the design of the magnetic field produced by a magnet, a field which, when enormously enlarged, is just the universal space, the energies go from the Sun N to the Stellar S center (externally) and continue from the Stellar S center to the Sun N (internally).

In Einstein's system, the return to starting point with a physical reason is not explained as it is in the Endospheric System, nor is the dispersion to the infinite of universal energy. With this consideration it can be said that in the new system the circulation of Universal energy, is in harmony with the mentioned law of energy conservation and has an incontrovertible physical basis.

As for the greatness in the new universe, it is necessary to dwell on the word greatness.

For example, if we show a farmer an orange and we ask him if its bigger the peel or the seed, he will say that the peel is bigger. But if we consider the seed in its power, in its genetic content of innumerable plants of oranges, then it is necessary to accept that the seed is enormously bigger than the peel.

It is a matter of distinguishing in the word "greatness" the meaning of extension or that of power.

In the Endospheric Theory, the Stellar Center has an infinite greatness. The act and power of Aristotle return: the infinitely great potential coincides with the infinitely small extension.

If we refer to the center of the Universe, we can see it in his geometric representation of Tav. XV, where the arrows pointing outwards indicate Earth as "smaller" than the Solar-stellar center, where all the energy of the

Universe is concentrated. We are used to a geometric concept, that is abstract, of space, so it is unusual to see a much smaller center, but potentially enormously large.

We can not therefore use the compass to look for the center of Earth, which surrounds the universal space. We have walk away from the geometry that is used in the “uniform” space which does compete it, and therefore can not be used for the concentrated, non-uniform space of the Endospheric Universe.

The Center of the Uni verse is a bipolar field Solar-stellar center where the sun and Stellar Center are, compared to the classic, relatively usual concept, relativitly close, but loses significance in the new concept of space the usual idea of geometric distance.

The geometric figure needs to be interpreted. We go back to the idea of size of the seed with respect to the peel. Observing terrestrial stratus, those that have been reached so far, we could think that we can proceed in depth towards increasingly greater densities, when in the Endospheric Theory the contrary is affirmed, because energy and vital densities are considered.

The greater the density, in this sense, meets hand by hand as we advance towards the Solar and Stellar Center, in which enormous quantities of physical and vital energies are concentrated, as it happenes for example in the seed of an orange, where we see in the physical and vital principles, harbingers of many plants, magnitude enormously larger than the size of the peel: inside the seed, sprout like the human embryo, those physical and vital energies that give rise to the prodigious phenomenon of life.

The Universe is a living organism where we find the power and act of Aristotle: infinitely small in extension coincides with infinitely large in power.

Magnetic field produced by a magnet (Magnetic field of a magnet): the lines of force of the field in magnetic induction produced by a magnet are directed from the north pole (N) to the south (S) externally to the magnet and from S pole to N. pole internally. In correspondence with the polar expansions, the field is very intense.

IMMAGINE DA AGGIUNGERE

Chapter VIII

THE SUN, DATOR OF LIFE

Solar energy and its conservation

The Endospheric Theory allows to solve the problem of the constancy of universal energy, in constant circulation: the the problem of energy emanating from the universal center and that disperses almost to the infinite in the old system, it is resolved.

Using the piroeliometer the amount of energy was calculated (solar constant) which reaches in the first minute a cm 2 of the surface area at right angles to sun rays and just a little outside the earth's atmosphere: a quantity of heat equivalent to 1,937 calories-grams was obtained.

The sun emits every second energy of over 100 billion of billions of kilowatt per hour, according to the classic system.

The energy flow that the sun radiates in a year amounts to 2.88×10 to the power of 33 calories-grams. "Near the center of the Sun, he writes Deutsch, at a temperature of 20 million degrees Celsius, the atomic nuclei collide with such violence to transform into each other.

The most important of these processes produce nuclei of helium2 starting from hydrogen 1. They are the so-called cycle of carbon and the proton-proton reaction.

Because of these thermonuclear reactions, 564 million of tons of hydrogen are transformed, every second, into 560 millions of tons of helium. Most of the 4 million of tons of helium that is dispersed every second, its converted in radiant energy, and this flows, outside the glowing surface of the Sun, at the rate of half a million of billions of billions of horse-steam ". Of this colossal quantity of energy the Copernican Earth receives a small fraction, even less than two billionths; the planets receive a few dozen of miliardesimi "Where does the irradiated energy from the sun migrate? writes Lammel. Only a very small fraction arrives on Earth and on the other planets. Does energy really sinks into the infinite and unattainable nothingness?"

The problem of the solar energy source and its auto refuelling remains classically unsolved. For Armellini as well, even referred to the Theory of Relativity, which for complexity reason, we will not develop here. This dispersion of energy, which we have already dealt with, is in contrast with the great "law nature's parsimony" as Maxwell called it

According to the endospheric theory, the energy of the universal magnetic field, like the lines of force of the magnetically inducted field by a magnet, circulates externally and internally to the magnet connecting the Sun and the Stellar Center: an incontrovertible solution.

The chlorophyll synthesis

This is what makes all the manifestations of life possible on earth, says Mezzetti, the continuous refilling of solar energy, which is used by the chlorophyll synthesis.

Let us now proceed to a brief scientific description of this process.

When a body has the possibility of doing a job we say it has energy.

The master builder has energy in his muscles, the tense ark has energy in the elasticity of its fibers, the motor of the car has energy in the fuel of its tank.

Energy is the ability to do a job, therefore energy is transformed into work and work turns into energy. For position, we intend the height from the ground, which is the height in respect to a chosen altitude to considered

as a «zero altitude» reference.

The energy of position of a body depends on: the quantity of matter out of which its made, as in its mass, on the so-called "gravity attraction" to which its subjected, on the height at which the body is located in relation to a reference system. An example of a cycle of transformations of a certain quantity of energy into work is that of a «roller coaster», a system that, like the pendulum, transforms the Energy of position into kinetic energy and vice versa.

We see however that the perpetual motion is impossible. If we touch the wheels of the roller coaster we discover that during a race, have heated up by the effect of friction. This in turn produces heat, which is thermic energy.

For the same amount of energy of position lost by the weight,a certain amount of heat is always produced, acquired by the water in which this weight is immersed. Joule got this result by measuring a certain quantity of water in free fall, the rising of its temperature and the path travelled by the falling weight.

Also in the case of the pendulum or the roller coaster, energy of position of the trolley or of the rails is transformed into kinetic energy which is transformed into heat, that is thermic energy due to the friction of the air (pendulum) or the rails (trolley). Energy, like matter, is preserved: it is not created, nor it is destroyed but transformed. The energy conservation principle can also be expressed in a closed system, that is without relations with the outside, the sum of all forms of energy is kept constant.

A direct source of heat is the burning of wood, but it must exist inside the wood before combustion. Thermal energy is released from the wood when it is transformed in ash (salts) and smoke, that is when its large organic molecules are reduced to simpler molecules such as CO₂ (carbon dioxide) and H₂O (water). The large molecules possess another form of energy: chemical energy. The wood-oxygen mixture has chemical energy. The ash and carbon dioxide mixture, which results from combustion, has no oxygen and cannot burn or produce heat.

One of the characters that distinguishes living beings is their possibility to "make an effort". A being is alive if it can release energy by performing certain actions. Also the stones on a tower have energy, but they do not go up there spontaneously and when they fall back to the ground, they remain inert.

The production of heat is a distinctive feature of life.

From his accurate measurements, Lavoisier observed that a mice and a lit candle (inside a closed bell) consume the same quantity of oxygen producing the same quantity of heat, and came to the conclusion that "breathing in" is a form of combustion, constituting a process perfectly similar to a burning candle, and therefore the air that we breathe feeds the internal flame of life that keeps us heated »,

What is burned in the organism of an animal? Lavoisier answered: Foods. All foods are compound substances that contain carbon and, burned in a laboratory, produce carbon dioxide and water, which are the same gases produced by animal respiration.

Foods have chemical energy: with the rate of oxygen introduced with respiration, organisms transform this chemical energy into heat and in work. Where does the chemical energy in food come from? Wood, sugar, organic substances that let food grow, are produced by plants. With the roots, plants absorb water from the soil;with the leaves they absorb carbon dioxide from air.

Starting from small molecules such as H₂O and CO₂, green plants build the more complex molecules of organic substances. From this manufacture or synthesis oxygen remains that is poured in the air. The small molecules H₂O and CO₂ dont have energy; the bigger organic molecules instead have chemical energy. The production of oxygen takes place only when the plant is illuminated (in the dark it does not emit oxygen).

Light is also a source of energy; the sun is an immense source of energy, that in the form of light reaches Earth through space. The cells of the leaves contain green granules of a substance called chlorophyll (in Greek cloros = green). In the presence of light, chlorophyll favors the "dismantling" of small H₂O and CO₂ molecules recombining the C, O and H atoms into larger molecules of organic matter.

This process is of fundamental importance and takes the name of chlorophyll synthesis or photosynthesis: this is the mechanism by which green plants produce organic substances that are necessary for all living beings. But it is also the mechanism by which green plants store inside food the energy of the sun, transforming it into chemical energy. The various forms of energy are transformed one in the other but are not created nor are destroyed; in certain transformations, they produce mechanical work or muscular work.

In the chlorophyll synthesis the energy of the sun is plus carbon dioxide produce organic substances and oxygen that have chemical energy.

In breathing, the organic substances plus oxygen have chemical energy that produces muscular energy, thermal energy (heat) plus carbon dioxide, plus water.

This is the biological cycle.

What makes all the manifestations of life possible on Earth is the continuous supply of solar energy. This energy gets transformed by the chlorophyll synthesis into chemical energy, which is then available for plants and for the animal kingdom.

Therefore the continuous supply of energy necessary to life comes from the sun, which is experimentally and scientifically the giver of life.

The universal balance

Not only the equilibrium and the constancy of unified energies occurs, but this happens in the terrestrial nature as well. However we see a trend towards an imbalance: huge resources are being destroyed or remain unused.

The wealth killed by the debauchery of vast sectors of society, which aim only at their material well-being, with the result that more than half of human kind literally lacks bread. Science has provided formidable tools to make life easier to large human masses, but politics holds immense exploiters in his hands, leaving humongous amount of men and children abandoned to misery.

Is all this really unavoidable?

All of this is really a fatal disharmony?

The ancients looked to heaven as to the realm of felicity and harmony, just think of Pythagoras. It is overlooked that the sky, with its superior harmony not only in its operation, but also in the supreme supply of energy, is the giver of life. It is necessary to look to the sky to recompose the peace and harmony of the world. An example, one of many, which is offered to our attention, is the destruction of boundless goods due to the individual's ego and ravines of wars.

A relevant example is the existence of inexhaustible sources of the fertility of animal and human waste that, instead of being used wisely for the fecundity of earth, are accumulated and rendered not only unusable but harmful and polluting. Huge quantities of waste are thrown in the seas, rendered useless instead of being used for fertility when the earth is always ready to provide with its unparalleled generosity. Humanity limited to look at the sky for its significant symbols, in particular the Sun that comes to express itself in the symbols of the church and in the tonsure of the priests, in the headdresses of other prelates, in the **ostia**, in the **ostensorio** and in the head of the goddess Hathor from the Temple of Dendera. The Sun is there, always generous, to enrich the **messi**, to show the wonderful nature in the eyes of humans, to give us the true wealth that is life lived according to nature. We need to abandon the perverted imbalances and contemplate the supreme example of harmony, offered to us from the sun.

Chapter IX

DAY AND NIGHT AND THE SEISMICWAVES

Table XI illustrates the day and the night in the two systems. As the straight rays of the exospheric sun illuminate only one hemisphere of the Convex earth, the curvilinear rays of the endospheric sun illuminate only one hemisphere of the concave Earth.

The other hemisphere of the convex Earth is not illuminated because it is not reached by the sun's rays; just as it happens in the other hemisphere of the concave Earth, which remains in the shade because the sun's rays fall vertically at midday and gradually oblique until they touch the ground tangentially in the points corresponding to 6 am and 6 pm; beyond these points they don't reach the ground anymore but they turn into space until they reach the other source of the universal field, namely the Stellar Center.

On the side of the night, due to the curvature of the luminous radiations, we can observe a large area funnel-shaped with curved walls (similar to a pseudo-spherical surface with a double conical point) that remains free of sunlight: these radiations, which circulate into the higher space of the night side, explain the luminosity of the night sky without clouds and without moon.

Table X illustrates the horizon system, that is the method to coordinate the celestial degrees with the degrees of the arch/**arc** of the sky . The construction of an astronomical system of Euclidean space requires only one circle or concave bow on the vault of the sky.

In the endospheric space we must instead employ two systems of degree, one connected to the observation point and one connected to the Cosmic Center, from which the radial lines extend on to the surface of the concave Earth. There are therefore celestial degrees and degrees on the arc facing the celestial surface.

The stars, located in the depths of the cosmic space appear projected, in their various points, onto the great vault of the sky, which seems to be covering the world.

So for example, the small semi-circumference ABCD appears enlarged and extended in the semi-circumference A'B'C'D' , whose degrees are the same as the minor concentric semi-circumference; so for example, if the Sun is placed in A appears to arise in A'; at 9 am will be in B but appears projected in B' ; C and C' are found on the zenith.

Any object seen in space appears to be in the direction with which the rays enter the eye or the darkroom of a camera.

In this way a star in point B appears to be in B' at a height 45 degrees above the horizon. This happens because as the star is 45 degrees in the sky, sends its rays downwards and towards the outside, penetrating into the eye of the observer under the same angle. Having as a fundamental line of observation a curvilinear tangent, together with a complete and precise system, it coordinates the celestial degrees with the terrestrial degrees, and we can apply such geometry to Mathematical Astronomy with the certainty of obtaining not only accurate results but also correct.

The known phenomenon of seismic waves whose effects are felt at the antipodes (or **anticefali**) and almost none at all in the middle zones. Suppose that the underground explosion occurs at point 12 (Table XI) with a considerable amplitude of its effects not before 1 and no later than 11; within this space the lines of force of the electromagnetic field pass and are reached by the lines of action of the explosion that's why these are felt at the antipodes (or **anticefali**) around 12 (see in Table XI the circle passing through 11). Before and after the interval 1-11 pass lines of force with greater distances and therefore are not reached by the signals of the explosion felt between 1 and 11.

Chapter X

«REVOLUTION» AND «ROTATION» OF EARTH - THE FOUCAULT PENDULUM - IMMOBILITY OF THE EARTH

The motion of "revolution" of the Earth – with the aim to make evident the motion of "revolution" of the Earth, many experiences were made. The one performed by Michelson and Morley, of which Francesco Severi (6) observes; "Einstein's thought received the last decisive impulse to build the Theory of Relativity due to the negative result of the famous Michelson and Morley's experiment and has very little importance, even more so when we examine the experiment itself, we can not discriminate the basic hypothesis of Special Relativity from the opposite hypothesis, called ballistic, of the composition of the speed of light with that of the source".

Trotton and Noble proved with great accuracy the non existence of a rotary motion on an appropriately suspended capacitor, which the classical theory of electrons would result a charge as a consequence of the translator y motion of land. Orienting in an oblique direction, compared to that of the motion of Earth, a flat, charged capacitor, according to the electron theory, one should observe a couple of forces tending to place the surface of the condenser parallel to the motion of earth, which is not observed at all.

Trotton and Rankine set out to highlight the presumable change in electrical resistance of a conducting wire oriented both parallel and in the direction of the movement of Earth. This experiment as well, like all the previous ones, had a null result.

In Endospheric Theory makes no sense to propose the hypothesis of the "revolutionary" motion of Earth, the negative results of all the experiments that should have proved such suppository "revolution" is completely predictable.

The stable Earth is the frontier of the Universe.

The Sun, with the endospheric sky, revolves around the stellar center, it does not make closed circles, but a spiral of about 180 rounds, at the two ends of this spiral we have the two solstices; at half-way the two equinoxes (see Table VII).

The motion of "rotation" of Earth on itself - In my volume "the Problem of Space and the Conception of the World", published 25 years ago, on page 274, I referred to the relativity of motions that leads to think its the inner sky that is rotating and Earth remains stable. To avoid further "shock" to the reader, I wanted to overlook at this hypothesis, especially as I thought that the classic rotation didn't involve the fundamental nature of the Endosfericity of the Universe.

The book came out with the admission of the classical rotation. But later on I had to change my mind: the stability of the Earth and the rotation of the Sky not only became admissible, but could explain in addition, the phenomenon of the down fall of mass towards the east as well as Foucault's pendulum oscillations.

Earth, in the Endospheric Theory, does not move: it is the inner Sky instead rotating from east to west.

With regards to the flattening of the earth at the poles, Einstein wrote: "As in the uniform movements there is no way of knowing who's at rest and who's in motion, we can also affirm that in accelerated movements there is no way to establishing who accelerating and who stands still.

In this way the principle of relativity is generalized.

It can be said then that the swelling of the equator is not caused by the rotation of the Earth on itself, but instead the celestial sphere, rotating in accelerated motion with respect to the stationary ground, causing the equatorial bulge.

Free fall of masses towards east (Galileo) and the oscillations of the Foucault pendulum

If on a given day we look at the Sun and the Moon, we'll see, that at a given point in the sky the Sun will come, followed by the Moon and if we look at the phenomenon the next day, we will see still the moon come after the Sun but, compared to the previous day, its distance from the Sun has increased; the moon seems to be left behind; its journey to the west is slower with respect to the same journey to the west of the Sun. This remaining behind the Sun, determines the lunar phases.

In the new conception the entire internal Universe (with Earth remaining stable) rotates from East to West, Moon and Sun as well; but the predicted phenomenon lets us see the Moon remain behind the Sun; the Moon appears to move towards the east.

A similar phenomenon occurs in the free fall of mass towards east, where the vertical string in Galileo's experiment has the role of the Sun and the mass the role of the Moon. The whole endospheric space rotates from east to west, the vertical string and the mass, but the mass with respect to the thread stays back towards east, which means it appears to be moving away from the vertical, animated by an Est -west motion a little slower than the motion of the mentioned vertical, which is coherent with the universal space like the oscillation plane of Foucault's pendulum.

Chapter XI

BIG-BANG - PULSAR - QUASAR - WHITE AND BLACK HOLES - LAW OF HUBBLE AND EXPANSION OF THE UNIVERSE - CRONO TOPE

In the hypothesis of a uniform cosmic space and, therefore, the hypothesis of the rectilinear luminous radiations, classics astronomers have come to the so-called discoveries of new and extraordinary stellar objects, such as "pulsars" (neutron stars formed of high-density matter and rotating on themselves at high velocity), "Quasars" (found at the extremes limits of the cosmos that emit huge quantities of energy), and gravitational Black Holes (in which matter becomes invisible); professor Giuseppe Arcidiacono writes about it: "All this puts in for discussion the current laws of physics and requires new and more advanced theories capable of explaining everything that is observed in the sky".

Based on the hypothesis that a Star finishes its nuclear fuel, three possibilities can be presented according to the function of its mass; if the star has a mass of less than 1,2 solar masses we have a "white dwarf" with a density at the center of the order of one ton per cm cubed. If the mass is between one-tenth and twice the mass the sun, its transformed into a "pulsar" or neutron star with a density of at least 1 billion tons per cm cubed (equal to the density of the atomic nucleus). If the Star has a mass much higher than that of the sun, a gravitational collapse will occur the with the consequent formation of a black hole.

Giuseppe Arcidiacono reports what Zichichi manifested: "if Black Holes exist ..." and because a physical law must be law forever and for everything, and therefore for the entire Universe, if this undergoes a collapse and disappears into void where do our physical laws end up? Arcidiacono asks.

The phenomenon of a gravitational collapse can occur at three levels: 1) on a cosmic scale, 2) for single stars or galaxies; 3) at a micro physical level, meaning at Planck's wavelength of {10 to the power of -33 cm}.

In the case 1) the collapse of the whole Uni verse is the process of the Black Hole, that is the inverse of the White Hole of the great Big-Bang explosion. In the *hypothesis* of a cosmic evolution we have two possible opposite processes, the process of "expansion" with a consequent dispersion of both matter and energy and the process of contraction that produces a concentration of matter and energy.

These processes would occur at high velocity and would start the formation of White Holes with a sudden and continuous "appearance of matter and energy from nothing ". In nature there would be three types of particles, the **bradoni** with a velocity of sub-c (protons, electrons ...), the **luxoni** with a velocity of c (photons, neutrons ...) and the **tachioni** with a velocity of hyper-c, like quasars.

Let us dwell now on the expansion of the universe and on Hubble's law.

The immense swarm of galaxies is not static, but in a continuous expansion: this phenomenon is the most "disconcerting" discovery of the twentieth century and constitutes the point of discussion of the various cosmological theories.

Through the Doppler effect, between 1912 and 1917, Slipher was able to calculate the radial velocity of 15 galaxies and found that they were moving away from us at the velocity of several hundred kilometers per second. In 1928 the comparison between Hubble's calculations of galactic distances and Humason's calculations on spectral displacements lead to the discovery of the Hubble-Humason law, based on which the velocity V of a galaxy, the entity of the shift towards red, was not accidental but was proportional to its distance from us:

where factor **o** is the direct proportionality and called Hubble's constant or constant recession.

In 1957 the highest escape velocity registered was of 120 thousand km. per second, and that is 2/5 of the velocity of the light. Hubble's law, writes professor Giuseppe Arcidiacono, "results established on solid experimental bases".

We can not share this conclusion: the whole argumentation that preceeds is not based on "experimental" bases at all, because everything is based on the hypothesis and the conviction of the rectilinear light and spectral radiation, which we have proved not to be acceptable.

No "solid" experimental basis, therefore, no "expansion" of the Universe" but rather a phenomenon of energy concentration towards the Stellar Center. The interpretation of the red shift of spectral lines is only a hypothesis based on the flat Euclidean space of the classical world.

Similarly, it can be said of the "observed" masses and of all the consequences that such "observations" imply.

In Chapter XII we will talk about Newton and his theory with acceptable consequences through a reconstruction of the non Euclidean space of the Universe. The appearance of matter and energy "from nothing" is absolutely inadmissible. The new space, as we will see, is not inertial.

The idea of the Big-Bang tends to describe the beginning and the end of the Universe reaching the singularity of maximum expansion and then inverting its motion towards the other singularity, the maximum compression (black hole). But does the Universe really have a beginning and an end? The law of conservation of energy (Chap.VII) would exclude it.

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In the prestigious volume "XX century cosmology" by Jacques Merleau - Ponty (II Saggiatore, Milan, 1974) it is written: "A certain disappointment is felt in finding that in cosmology itself we find the most disparate and contradictory theories and that there is the most complete disagreement on fundamental points such as for example in the question of the finite or infinite age of the Universe and the law of energy conservation".

Space-Time or Chronotope

We find a contradiction when attributing reality or non-reality to space-time or to chronotope.

We need to refer to the words of the well-known physicist Percy Williams Bridgman on p. 16 of his "The logic of modern physics" Einaudi edition: "Purely mathematical reasoning can never give physical results, and if something physical comes out of mathematics, it must have been first introduced in another form". A mathematical formula by itself does not say anything.

Math is only logic.

Mathematical steps are subject to the laws of logic.

For example: $ax+by+c=0$ does not say anything, unless we first attribute to x and to y the value of a variable and to a , b , c a constant value; now the predicted expression can mean a straight line or a plane depending on the meaning we give to the variable and to the constants, and also if we refer to a geometric body in one or two dimensions.

The Pythagorean relationship, characteristic of Euclidean space

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can be extended to abstract hyperspaces with 4 or more dimensions using for example the space-time invariant with a new coordinate independent of the other 3 and proportionate to time $ct = x$, with c being the constant speed of light. The new 4-dimensional Euclidean invariant

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to express the constancy of the speed of light, Einstein and Minkowski used the following condition

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expressions that, by multiplying both members by c to the power of 2, can be written as

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Einstein admitted the expression,

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where s is the distance squared of the space-time of two points; this new invariant differs from the classic (1) because of the temporal interval sign squared, $x^2/4$. The two invariants (1) and (3) have a very different meaning. The cancellation out of (1) says that: two events coincide (they happen in the same place and at the same time), while the cancellation of (3) says that the two points not coincident can be joined by a ray of light.

Let us dwell on the relation $ct = X^4$ and examine the contradiction inherent in (3). The X^4 assumes only apparently a similar character to the other 3 coordinates, characterized by spatial distances while to X^4 is attributed the character of a temporal interval, even if we interpret it as a distance because it is produced by a constant number "intended" as the constant velocity (of light) for a period of time.

(3) tends to make homogeneous spatial and temporal dimensions in spite of the prefix that space and time are fused but not confused. Space and time are measurements of different nature even if the mathematical formulas by themselves do not specify this diversity.

These formulas have led to erroneous interpretations because space is obviously something else from time. It is said: "Where there is space there, also time" and we end with Minkowski's fourth dimension. In the word "four-dimensional" there is a serious error: by dimension we mean the extensional measurement of homogeneous bodies, while in fact (3) is not constituted by homogeneous bodies having the first 3 terms with a spatial meaning and the 4th term with a temporal meaning, even imposing the meaning of a space to the product of a constant number c for t "justified" by the fact that this constant number is the numerical rate between the measure of a space and the measure of a time, that is a value "considered constant" of the speed of light.

This velocity, a basis of the Special Relativity is contradicted by the same supporters of Relativity itself, which had to introduce the so-called 'multi-temporal Universes' in which increasing values of c : c, c', c'' are considered... also to the tachyon particles an hyper- c velocity is attributed, which is higher than the "insuperable" c . The fact that "where there is space there is also time" does not modify this contradiction; there is not only time where there is space, but also a temperature.

If a "four-dimension" could make sense, it is not seen why the time dimension has a privileged position with respect to other dimensions of different nature: I would suggest not to use four-dimensional term anymore. Minkowski's **diagrammatica** can not be accepted within physical verification. There is the geometrical necessity to identify in space-time a determined privileged time direction. Presuming a fundamental physical orientation with a temporal variable establishes a limit to the recognition of time in the quality of a geometric entity since there is a net contrast between irreversible orientation and substantial irreversibility of all spatial relations. If space-time is not real, it is not possible to understand why a mathematical representation is useful.

In fact, modern and large machines (betatrons, synchrotrons, cyclotrons, linear resonance accelerations, etc.) that are used in laboratories to set their speed corresponding to high accelerating tensions, would seem to constitute the confirmation of (3) in Special Relativity.

It is a "modus operandi": in other words the great accelerator machines only work if designed according to the laws of relativity. In these laws, however, bear in mind that it is the reality of an irreversible time and that the experiments are necessarily carried out along short periods of time.

There are reports of Special Relativity that can not be examined in the laboratory. Let us consider for example the relativistic relation

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where t and t' are the times calculated by two operators located on two **regoli**, one in motion with respect to the other, c is the speed of the light, v the speed of one of the two **movable** with respect to the other. When v assumes the value of c , the radical expression becomes zero, so the other member is also nullified. This is what the mathematical formula (abstract) reads. Expressing reality is a different thing. Time never stops!

Space-time or the relativistic chronotope is useful but not real element.

Chapter XII

COPERNICUS - KEPLER - NEWTON

The image of the Universe has been developed and modified over the centuries. Overlooking past the primitive images, in the II century after Christ we have the geocentric system of Claudio Tolomeo . In the XV century Niccolo Copernicus, Polish from Thorn (1473-1543) re-proposes the heliocentric system, already proposed in the IV century AC by Aristarchus of Samos. In the XVI century almost contemporary, come Galileo Galilei from Pisa (1564 - 1642) and Giovanni Kepler of Würtemberg (1571 - 1630). Galileo, father of physics and modern natural sciences, founder of the experimental method, promotes Copernican ideas. It was he who discovered the law of inertia and that of the free fall of mass in the gravitational field .

1) Kepler

Kepler discovers his three famous laws on the motion of planets. The ellipse required Kepler a huge effort to emerge, from Mars motion's chaotic mass of data, which he had inherited from Tycho Brahe. Kepler's task was the following: on the basis of Tycho's data, which is the simplest curve that includes them all? In all the theories of Mars, Kepler's included, there was only one fire for each orbit. We have to distinguish between Kepler's physical hypothesis, which is that Mars describes an oval shape around the Sun, and its mathematical hypothesis, which involved calculations with a perfect ellipse.

Kepler's decision to treat the observed Physical phenomena as approximations to mathematically exact conceptions got transformed after him into a typical property of the scientific investigation Kepler had initially identified the orbit of Mars in an oval with only one fire, and only after he tried unsuccessfully to find the direct square of the oval curve, noted that supposing an ellipse of the same oval eccentricity, its lunette would have been little different from that out of a perfect ellipse: the defects of the upper part are compensated almost exactly with the excesses of the lower part of the oval shape Tav. VIII. Since ancient times, men have imagined curves as responding to simple laws as far as possible: between them, near the straight line and the circle, the ellipse and the hyperboloid. With Kepler we see these forms in the trajectories described by the celestial bodies, at least, as Einstein writes, with great approximation.

2) Newton Isaac of Woolsthorpe

In 1642 Galileo died and Isaac Newton was born. Before Newton there was no well-defined system of physical causality, able to grasp the deeper features of the experiential world. Kepler's laws explained the motion of the planets around the Sun (elliptical shape of orbits, equal areas in equal times, relationship between the semi axis and the duration of path), but these rules did not satisfy the necessary condition of causality. They are three rules logically independent from each other, without any internal correlation; they refer to their motion taken as a whole and not as to why and where the state of motion of a system in a given

model derives from the state of motion which comes immediately before.

They are integral laws but not differential laws.

The differential law is the only form that fully satisfies the necessary condition of causality of the modern physicist. Having had the true conception of a differential law, as Einstein writes, is one of the greatest merits of the genius Newton.

An effect was the observation that the cause of the movements of celestial bodies was identical to gravity.. However, they were three weak points in the Newtonian theory: absolute space, the introduction of direct forces that act instantly at a distance, the absence of an explanation of the fact that weight and inertia of a body are determined by the same size, the mass.

3) Maxwell James Clerk of Edinburgh

Newton's theory of motion, taken as the foundation of all theoretical physics, received its first blow from Maxwell's theory of electricity. It is found that mutual actions exercised between electric and magnetic bodies, are not determined by forces that act instantly at a distance, but from phenomena that are transferred into space at a determined velocity.

To the material point and its motion, was added a physical element, the "field", a fundamental concept in the first mechanical conceptions but then the "electromagnetic field" was understood as the last irreducible keystone of physical reality.

4) Einstein Albert of Ulm

The three weak points of Newton's theory disappeared with the advent of the brilliant General Relativity theory of Albert Einstein which implies a complex mathematical development, which can be read in numerous treatises.

5) Validity of Keplero's and Newton's laws

In the endospheric concept we have the same mass quantity as it is considered in the exosphere concept with the relevant circumstance that the mass of the Esospheric Universe averages a density enormously smaller than that of the mass of the Endospheric Universe. Kepler and Newton saw the sky in the same way as we all see it, obviously including the theorists of the Endosferic Universe.

We made the example of the flat mirror: the image that we see in the flat mirror is apparent. Among the real objects(near) and virtual ones intercede the well-known Cartesian laws of reflection.

The reflected image of an object, has the same dimensions and the same shape as the object itself, but its inverted. The geometric transformation technically leads to the same results: we see in the sky the images of the celestial bodies but that are only virtual; in order to have the real images, the geometrical procedures we developed and the analytical technique can be read on page 238 of the book "The problem of space and the concept of the world" n. 12. The sky is not a mirror, but its images can be assimilated to those reflected on a mirror, with some important considerations: the space we see is not euclidean; it undergoes phenomena of expansion and contraction, which is not perceived directly, because what we perceive is only the Euclidean image of celestial objects. But the virtual Euclidean image can be passed through geometric and analytic to the corresponding real images.

When Newton contemplated the sky, in his mind he was obviously imagining in his mind not the real images, but the virtual ones of the celestial bodies, whose distances, masses and volumes had to be reconduced into their real representation.

The transformation by reciprocal radii and the corresponding phenomena could only be considered starting from the last century with the advent of Maxwell and other famous mathematicians and physicist. The real masses as well as the real distances are obtained by applying to the virtual images the geometric transformation. Therefore the Newtonian laws are still valid in the new concept, but this validity occurs only after changing Newton's formulas with these transformations, both geometric and physical. The phenomena of the Big-Bang of the expansion of the Universe, and the expansion-concentration of virtual zones.

The second law of dynamics

$$F = ma$$

is Newton's work, with this mathematical formula he expressed the concept of strength. The constant ratio m between F and the acceleration a arises from Newton's ingenious intuition as well as from experimentation.

When a body's acceleration is null, as it was supposed in the classic cosmic space, we have inertia; in the new concept instead, the of the path of the objects launched into space dont ever have inertia because of the nature of cosmic space itself, chap. VI.

Binet's dynamic formula, (known to Newton) says that the force a planet makes is given from

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which expresses the radial acceleration multiplied by the mass m in the case of central motions by means of geometrical elements of the trajectory. With mathematical developments that we will not report, we got to this formula

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from which Newton drew the famous formula of Universal Gravitation

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I omit the complete technical development that leads to this formula limiting myself to give only these few steps.

The validity of the Keplero's and Newton's laws in the endospheric concept comes from the fact that those laws are based on a virtual phenomena, which translated into non-euclidean terms, provide us with the corresponding real phenomena. The mass of the exospheric Cosmo is quantitatively equal to the mass of the endospheric Cosmo. The mass of the exospheric distant bodies reaches a density with values billions of billions of times smaller than the mass of air. Classically, they are considered flights of giant bodies with a density close to zero and a velocity faster than light (quasar). These incredible values of density and speed are calculated, not measured. The masses of the endospheric bodies reach very high densities with dilatation and contraction of matter due to the nature of the universal field (TABLE X). In the classic concept we get to conceive "the creation out of nothing"! In the new concept, the celestial phenomena instead are linked to the nature of the universal space. This is one of the aspects that radically differentiate the two concepts.

I can not close this chapter on Copemico, Kepler and Newton before getting into to the exceptional personality of Isaac Newton that emerged in the group of distinguished like Boyle, Halley and Hooke known for their work on natural philosophy.

After spending some years at Cambridge, Newton got his first degree and a scholarship, and then returned to his little propriety at Woolsthorpe where for the first time tried to understand the forces that regulate and govern the movements of celestial bodies. From his first works on the gravitation problem around 1665-66 Newton preserved a moving memory: "I was then at the top of my creative force and I will never feel such a passion for philosophy again". The fall of the apple, a simple act, brought that mind, made it more acute to study, to meditate and to the many discoveries, to the elaboration of one of the most ample syntheses of the history of science. Even that apple was subject to the same gravity force that opposes the flight of the most daring birds. Why then its effect should not have been felt even much more distant, till the orbit of the Moon? The Moon could have been considered as a terrestrial projectile launched horizontally with enough speed that it would not fall back on Earth and push it even further. What was true for Earth and the Moon could be true for the Sun and for the other planets as well. This argument had not been considered by Galileo. Newton then began to calculate the attraction that kept the Moon and the planets in their respective orbit. Took as a starting point Keplero's discovery that the planets revolve around the Sun in elliptical orbits. But for this reason their movement generates centrifugal forces directed towards the outside of the ellipse. Huygens in 1659 had already provided the mathematical expression of such forces relative to the simplest expression of circular movement,

but published it only in 1673 in his *Horlogium oscillatorium*. Newton calculated these forces and realized that to hold the planets in their elliptical orbits around the Sun, other forces were needed, like centripetal forces directed towards the inside of the ellipse, more precisely towards the Sun, and was able to give them a perfect balance. But since he was not able to calculate the centrifugal force of the movement according to an ellipse, he studied the simplified system of the circular orbit, and then calculated the centrifugal force that should have kept the planet in its orbit, relying on Kepler's third law. He found that this force was inversely proportional to the square of the distance from the planet to the Sun. New calculations allowed him to find that gravity was not enough to determine exactly the central force necessary to compensate for the centrifugal force exerted on our satellite by the rotation around earth, Newton temporarily left the calculations and began to devote again to the study of light. Around 1671 the French astronomer Jean Picard measured the length of a meridian degree, a work undertaken on the initiative of Louis XIV after the foundation of the Observatory in Paris in 1667. as he got to know the results observed by Picard, that were discussed by the Royal Society in 1672, Newton returned to Cambridge to redo his calculations. As he realized that he was about to reach a conclusion, his emotion came to such a paroxysm that he had to ask one of his friends to finish them for him. This time the value of the force that holds the Moon in its orbit was exactly determined: in fact if a stone could have been transported to sixty terrestrial radius away from the Earth, it would fall into the same spot and with the same velocity of the Moon, if this suddenly arrested in his race. Newton was convinced that it was only the gravity force to hold the Moon in its orbit, even though there is already a single law of universal attraction. He did not have any evidence and was dwelling on the importance of using **puntiformi** masses for Earth and Moon. However, it was about deciding whether to calculate the distance between Earth and Moon starting from their respective centers or their surfaces, or whether they should instead use another derived greatness.

In 1673 Newton's attention was attracted by Huygen's studies, who had formulated the laws of circular movement. The expression of centrifugal force proposed by the great Dutch scientist was essential to solve the problem of universal gravity. The knowledge of this expression and Kepler's third law, which describes the proportionality between the squares of revolution time and the cubes of the great axes or the radius, in the case of circular orbits, allow to draw the formula of the force, the law inversely proportional to the square of the distance. The link between the force that cause objects to fall towards the center of Earth and the movements of the Moon and of the planets needed to be certain.

Since 1666 Hooke had been presenting to the Royal Society a monography on the movement of celestial bodies in which he expressed the idea of a force that attracted planets to the sun and the satellites to their planet. Hooke pointed out that this force was not constant, but depended on the distance of the planet from the Sun and, in the case of a satellite, on the distance from the planet; although he realized that he was not able to give the exact form of this law. Three years later, in 1670, Hooke made progress of capital importance in the elaboration of his theory: for the first time he expressed the idea of a universal attraction; he wrote that the force of attraction initially attributed to the Sun and to its planets, is not only for celestial bodies, but it was a universal force not limited to unite bodies of the solar system, but it is also identified with gravity, that is with heaviness it self. He announced a new system of the world, built up between assumptions, according to the laws of mechanics: 1) its admitted first of all, that all the celestial bodies have an attraction force or gravitation towards its center. Sun and moon are not the only ones to have an influence on the body and on the movement of Earth, and the Earth on them, but also Mercury, Mars, Saturn and Jupiter, have a considerable influence on the movement of Earth, thanks to their force and equally Earth's force of attraction has a considerable influence on all the other movements; 2) the second assumption expresses the law of the force of inertia; 3) the third assumption is that these attraction forces are as powerful as the closeness to the center of attraction.

Hooke acknowledged that he had not verified experimentally the value of the third assumption. Later on Hooke said: "Whoever will dedicate to this task - I dare to promise- will find out that this principle influences all the motions of the world, and we will have Astronomy's perfection when this principle will be perfectly understood."

Hooke had not yet discovered the law of the inverted square, but he had certainly taken a big step ahead. We understand now Hooke's words on his priority right and the copyright allegations against Newton a few years later. Newton defended himself by claiming he was not aware of the research done by Hooke and did not read his studies on attraction; in fact he had too treated the subject with the same precision as Hooke, and used different mathematical systems than Hooke.

The fact that Hooke had become Secretary of the Royal Society did not encourage Newton, while it was Hooke who pushed Newton to deal with the problem of gravity again: research that Newton brought to conclusion in the exceptional synthesis in *Principia*.

Newton returned to gravity shortly thereafter demonstrating the following propositions on the orbital movement of a material point: Kepler's second law or the law of the areas, enunciated in the case of planetary ellipses, is true for every movement, as long as the force exerted is a central force, passes on a fixed point; if this force is inversely proportional to the square the distance of the center of attraction to the material point, the movement will follow a conic section, that is, according to a circle, an ellipse, a parabola or a hyperboloid, considering the center of attraction in the center of the circle or in one of the cone's fires; inversely a material point that describes an ellipse around one of its fires, as in the case of the planets, is subjected to a central force directed towards the fire and inversely proportional to the square of the distance.

A short time later the astronomer Edmond Halley, taking into account Kepler's third law, had arrived at the conclusion that the centripetal force that retains the planets must have been inversely proportional to the square the distance from the Sun.

A series of lectures written by Newton between 1686 and 168 form the treatise *Philosophiae naturalis Principia Mathematica*. Also in 1686 Dr. Vincent presented to the Royal Society *Principia*'s manuscript and on May 9th the society decided to publish the manuscript and the president in charge at the time gave *Imprimatur*. After Hooke's proposal Newton almost suppressed his third book on the world's system, by far the most important as it completes the manuscript. He didn't do it mostly to avoid any damage to Halley who was in charge of the publication and financing of the work, and would have had profits from sales. From the correspondence between Newton and Halley we see that there were other difficulties and others dissensions, but finally in the summer of 1687, *Principia* was published (500 pages). The work entirely written in Latin, was preceded by Halley's words in Latin dedicated "To the illustrious Isaac Newton and to his work in the field of mathematics and physics " and "to this man, dear to the Muses who came close to the gods more than any other mortal. "

Principia consists of three books, dealing respectively with the problems of movement in resistant vehicles, in non-resistant vehicles, and finally, the world system. The law of universal attraction properly associated with Newton's name, and the deductions from this law, concerning the Sun's and the planet's mass, occupy only a tenth of the work.

The first book begins by proposing definitions and axioms or laws of movement, first mechanics coded presentation. We find in it the concept of mass according to Newton, the quantity of motion (mass times velocity), the vis insita (inertia's mass), the vis impressa, the change in a body state of motion, produced by collision, by pressure or by centripetal force towards the middle and acts at a distance. Then Newton enunciates the three famous laws of motion, recognizing Galileo the honor of the first two. The second law modernly states what derives in relation to time (mass by acceleration) is equal to the applied force. The equality between action and reaction (third law) was extended from contact actions to the actions at a distance. In the first book Newton shows that the movement of a material point, under the effect of a more general central force, takes place according to Kepler's second law or law of the areas, and as this force is inversely proportional to the distance if the curve described by the point is an ellipse, the center of the force will be in one of its fires. In the second book he developed hydrodynamics concepts. In the third book, Newton presents the system of the world, describing and explaining the movements of the planets and their satellites, explaining for the first time the reason for Kepler's the three famous laws, that some scientists still doubted. Descartes vortex theory was this way collapsing; attraction replaced the impuls. This work for the wideness of discoveries described, is one of the most prestigious events in the history of science. Newton expresses his attitude on the hypotheses, concluding *Principia* with a true act of fede positivistica: *Hypotheses non fingo* (I do not imagine, I do not feign hypothesis).

All celestial mechanics care taken from the law of universal attraction and the laws of mechanics. This work today lets us have a complete description of the movements in the solar system and the prediction of astronomical phenomena, due to gravitation.

Newton's theory is valid only in a Euclidean universe and the movements, discovered and denounced by the Theory of General Relativity are plausible, at a solar system scale, explaining the secular residual fraction of Mercury's perihelion.

Newton's greatness is universally recognized; in this work I wish to complete the search on the spatial nature of the solar system: the validity of the Newtonian world system is linked to the supposed

Euclidean nature of universal space. This validity is confirmed by the Endospheric theory as soon as we apply the transformation by mutual radius vectors, which makes all of Newton's assertion confirmed, we will refer to his great work in the non-Euclidean universe instead of the Euclidean universe, that, as we have amply demonstrated, it is achieved through the transformation that does not alter the observation data, which means it does not alter the data considered by Newton for his work, but its only the similar specular image of the real

universe.

The transformation formulas are the following:

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The transition from Newtonian's school to the Endospheric Theory the fundamental point of the new concept. Shakespeare made Hamlet say: "I could be enclosed in a nutshell and yet believe to be the king of infinite space." With these words we compare the concept of extension and that of collection; from the infinite open world to the one collected in the Endosphere; the image of the Euclidean sky is projected into the non-Euclidean real space.

James Clerk Maxwell, a century after Newton comes among us: with the electromagnetic field, the non-Euclidean space is born. Newton's glory of the structure of a Euclidean world remains unchanged, which is opened with The Endospheric Theory which is firmly based on experience, to overcome many weak points of the classic system, starting from the light year and the energy conservation law, and the description of universal reality.

Chapter XIII

QUESTIONS AND ANSWERS

Q1 - Suppose we are astronauts in space, at an average distance between earth and moon, so as to see both spherical bodies. How can we explain this data, how can we see a body in space as the moon (so far is good) and the Earth which - according to the Cosmocentric theory - it contains within its spherical surface the entire Universe?

A1 – The impact with new ideas creates a certain chaos in the mind. The classical concept is only partially overcome where as we are talking about the new concept of the world. I will refer to the tables of the new book. The transformation by mutual vector rays allows an inverse vision of the world from the classical one with the condition of taking into account our vision according to the behavior of light linked to the discovery of Maxwell on the electromagnetic nature of light. This circumstance is fundamental. Comparing Table XIV (Classical Universe) with table XV (Endospheric Universe), we pass from the first to the second applying the geometrical transformation and its immediately evident that table XV has the same aspect of Table III, the image of the magnetic spectrum terminated by the action of a magnet.

The basic nucleus is therefore the vision: carrying out this transformation, the angles remain unchanged, that is to say the observed data remain the same.

In Table V, the phenomenon for which Earth's surface is seen convex (see also the table I); in the figure on the left of Table V, placing the observer at point H, the Copernican Earth is seen at the points i, k, j (the mind interprets the path of light as straight, as it is exposed in Chap. III, as in the case of short distances. Instead of the points i, k, j we actually see the points F, B, G, due to the curvature of the rays of light, that is, we see the real convex shape of the terrestrial soil.

This is the consequence of the electromagnetic nature of light that runs through the wide universal spaces. We see an identical effect looking at the figure on the right of table V, where its illustrated how the concave Earth appears to an astronaut at H on the Moon. Even in photography, the Earth appears to be convex as it is explained in Chapter III.

Q2 - How is Earth "born"? The Solar System? The Universe?

A2 - These questions have more of a philosophical character than a scientific one.

Observing the magnetic spectrum, (Table III), we have the inverted aspect of the Copernican Universe (Table XV) in the new theory, concluding that the geometrical orientation of the inversion reflects the physical orientation of the electromagnetic lines of force of the Universe.

Bearing in mind that geometry is abstract and physics is real, the abstract geometric illustration can be interpreted as the physical behavior of electromagnetic waves (Table III). Since light has electromagnetic nature (Maxwell), its path has the same behavior as the inverted Universe.

The "birth" of Earth, the Solar System and the the Universe, deals with problems that are not of a physical

nature.

My thought is the same as Lavoisier's: "Nothing is created, nothing is destroyed, everything is transformed". I do not see how an electron can be created out of nothing, nor how it can be destroyed.

In Chapter XI we have talked about the Big-Bang theory, and the ever expanding Universe or the Universe in expansion-concentration.

Q3 - Given as the terrestrial radius 6.370 km :

- 1° the radius of the universe should not be more than 6,370 km;
- 2° all distances should therefore be reviewed;
- 3° the thickness of the earth's crust should be 6.370 km with a decreasing density tending to 0.

A3 - In the Chap. III we deal with the problem of measuring lengths. We measure a road by a meter, that is the 40 millionth part of a terrestrial meridian. How does it work? Using the meter to see how many times its contained along the road itself.

So the meter is a unit of length with which we can measure homogeneous lengths by the meter.

Measuring the length of a ray of light is a different thing, because we do not know the length of the measurement unit, which is the length of each photon of the light.

This is a physical entity of which we ignore the length of each of the individual constituents, namely the photon.

The meter is the sub-multiple of a terrestrial meridian; the photon is a submultiple of a ray of light, but its value is not known and perhaps it is possible to know.

From light's radiation we would need to know the length of a submultiple of its extension. So measuring the length of a road and measuring the length of a ray of light are two different operations; for the first we need to know the unit of submultiple length of a meridian that we can establish; for the second operation we need a unit submultiple of one light radiation that we cannot establish.

In Table XI we can consider the line segment that reaches from the sun the 6 pm point (straight solar radius) whose width is calculated at around 150 million km. (therefore, we are using the meter as the unit of measure); to this segment correspond the geometric transformation of the semicircle that goes from the sun to the 6 pm point. To measure the length of this semi-circle, we divide by 150 million obtaining unequal decreasing segments going towards the Sun, keeping in relationship the variable intensity of light.

So 1 non euclidean km is worth the 150 millionth part of this semicircle, but these parts are not equal to each other but rapidly decreasing in the direction of the Sun.

Making the geometric length of a radius coincide with the decreasing intensity of illumination is the root of the so-called year-light.

We then conclude that the argument has no foundation: to the classical terrestrial radius corresponds to the length of the Endospheric Universe in terms of non euclidean km with the transformation, so in terms of non-uniform variable lengths different from what happens in the Euclidean measurements of exospheric space. The objector points out: "all distances should therefore be reviewed". We answer that with the absence of the knowledge of a unit of measurement, all cosmic lengths must be reviewed in order to adapt to the nature of the new space and to the electromagnetic nature of light according to which the measures are made.

As for the thickness of the so-called earth's crust, it is dealt at the end of Chapter VII.

Q4 - In the Endospheric theory, a ship in the distance is seen, like in the classic concept, the trees first, and the bottom after; this does not apply to a camera that "does not suffer" from the mental process that determines vision.

A4 – Observing a (far) object , the mind interprets in a straight line the radiation of light that connects the object with the eye (Chapter III).

Table I illustrates the classical proof of the shape of the earth (straight line from the Sun to the Eye) and the endospheric proof of its concavity where the curvilinear radiation, transformed from the previous one, shows the same image, the same telescopic view, the mental interpretation of the classical image.

The camera fixes on the plate not a motion but an instantaneous image of individual frames starting from an initial stretch that is enormously small, so it is always the brain of the observer that interprets the phenomenon. The development of movement is just the rapid succession of images (frames) projected on a screen; such projection is linked to the other mental phenomenon of the observer, which is the persistence of the retina, before from the brain.

Q5 – Is there a proof of the curvature of the luminous waves according to the Endospheric Theory with respect to the curvatures according to the Relativity Theory?

A5 – The curvatures in Einsteinian space are due to the presence of a gravitational field. The infinite and unlimited space of Newtonian cosmology is replaced by Einstein by a still unlimited space (with no limit), but finite in the sense that starting on a certain direction, you will return at the point of departure.

Eddington defines the classic space as a "vacuum" (on average almost empty), noting that we have a Star every 20 cubic parsecs, a parsec has the length of 30 thousand billion kilometers.

The radius of curvature of the Einstein universe has a length of thousands of billions of kilometers, while in the endospheric universe the radius of gravitational curvature is added the electromagnetic field, that is the magnetic field (spectrum) that permeates the universal space having a maximum euclidean length of 6,370 kilometers (terrestrial radius), which is a curvature of $k = 1 / r$ enormously bigger.

Q6 - Given the cave earth , why are the seas and the oceans not falling on the inside?

A6 - In the old concept the motive consisted in the action of gravity, (gravitational attraction), in the new system we considered a cosmic repulsion phenomenon (even Einstein admits this) by the Sun. The effects are evidently the same.

Furthermore, the widening of the equator, caused by the rotation of the universal system around the fixed axis Universe - Earth (Earth is stationary) also explains the greater distance of the opposite points on the equator with respect to that of the poles, as it is also known classically.

Q7 – how come the space probes launched on the basis of the current theory calculations are correct and how should they have gone and came back exactly where they should have ? The time factor should be influenced in the conception-description of the cosmo-centric universe at which at higher curvatures it should give a different time, duration.

A7 – In chapter VI we answer this objection.

Q8 - How would the planets of the solar system be arranged in the Endospheric Theory? Just like in the exosphere one, around the sun? It would not seem from a picture of your drawings.

A8 - Read chapter XV on planetary orbits

Q9 - If earth is the least dense "body", at the limits of the cave universe is it possible to calculate the density of the Sun, the other planets and the Moon - according to this Theory?

A9 - According to the Endospheric Theory it is necessary to reflect on the mass and density of the Sun because the Sun is not considered to be a massive sphere, but as a sphere that has an inside structure similar to the cellular one; however, the masses are the same outside and inside, although varying the densities, so therefore Newton's laws on masses apply (see Chapter XII). The classical astronomer determines the mass of the Sun by applying Kepler's third law, which refers to earth's 'orbit', which is a reference that does not make any sense in the new concept because Earth is stable and does not travel through any orbit (Chapter X). The annual orbit that appears in table XV is perpendicular to the curvilinear trajectories of light without a physical meaning because Earth is stationary (isogonality).

As for the density of the Sun, the classic astronomer refers to the mass and to the radius of the Sun considering the density of 1,4 gm / cm³ (gm = gram mass); the ray of the Sun is classically calculated considering the Sun not as a single body, but as a gaseous body.

The question of its diameter, always considered by the Copernicans, is complicated by the fact that we can not say exactly where the atmosphere ends and the field of the Sun begins. There is a brilliant surface that impresses on the photographic plate and appears to us like a disc when the sun is observed behind the evanescent clouds. This is the surface (referred to as the photosphere) that the traditional observer has in mind as he speaks of the diameter of the Sun. Seen from the Earth, this surface measures on average 32 arc minutes. From this and from the knowledge of the classical astronomical unit value (semi-major axis of earth's orbit 149.600.000 km) we obtain the "real" radius of the Sun with an equation that I will not develop now, and that provides precisely the radius and therefore the real diameter of the classic sun. I omit the explanation of the arc minute that measures the small angle α of the observed sun's ray from the earth.

I would like to mention a consideration, most important: the classical astronomer considers space as Euclidean with its straight lines, for example joining the Earth with the Sun.

Another consideration is the hypothesis of the gaseous Sun, which is not admitted in the Endospheric Theory.

We can identify for the new concept the astronomical unity applying the transformation by reciprocal radius vectors, bearing in mind that in the new theory space is not uniform, nor flat, but not uniform and curved. The universal lines are curved just like the lines of force in the electromagnetic spectrum. In the new concept we admit the same masses that are calculated classically.

The Sun, the planets, and the celestial bodies have in reality an extension much smaller than the one calculated by astronomers, but have a much higher density: masses do not change. Newtonian laws apply equally. The new concept sees in the seed of an orange, an enormous size compared to the peel because it is in the seed that the physical and vital principles are concentrated, which, replacing the mere illusory extension of the classical universe, we embrace the existence of living beings as it happens in the human and animal embryo.

Q10 - The bigger curvature of light (compared to General Relativity) is an experimental fact or rather another hypothesis? And not experimental?

A 10 - In General Relativity, among the experiences on which it is held, we have the deflection of light rays. This experimental deflection is predicted by Einstein's theory, which also is held on the famous elevator experiment by which the equality between heavy mass and inertial mass is tested.

We can consider what has been observed by the astronomers: given the position of a star seen at a certain point of the sky, when its luminous radiation (light) passes close to a body like the Sun, this radiation deviates from a straight line to a calculable angle α . This observation is expressed by Einstein attributing a curvature, even mild, as it is exposed in Chapter VII "The energy conservation law...". This deflection in General Relativity is an experimental fact; the Endospheric Theory, in addition to admitting this deflection, is held on the physical basis of the electromagnetic field.

Q11 - Given the description of the cave Earth how is the formation of the Universe explained?

A11 - Read chapter XI on the Big-Bang.

Q12 - How are tides explained?

A12 - First of all it is necessary to correct the widespread idea on this phenomenon, which is explained by Newton's gravitational law.

The phenomenon of the tides has been studied by many physicists and astronomers but has not yet been fully explained. Newton had to admit that the distance influences according to the cube to justify the greater influence of the Moon in comparison to that of the Sun, but did not explain why in this case the attraction force is proportional to the cube rather than to the square, as in other cases.

Other aspects of the problem are uncertain in the traditional explanation. Even applying the new rules in the new concept, the problem does not seem fully explained.

Q13 - How is the formation of the Universe explained, the formation of the cosmic electromagnetic field on which substantially the whole theory of the Cosmocentric Universe is held?

A13 - Read chapter II and chapter XII.

Q14 - How is Foucault's experience with his pendulum explained?

A14 - Read the Chapter X.

Q15 - It is acquired that the verification of General Relativity concerns the slowdown of clocks in a gravitational field. Time, which is what clocks measure, runs more slowly as the gravitational force gets more intense. But then is it correct to say that in a gravitational field, in fact (slowing down the rhythms), we age more slowly than in the absence of gravity? In the order of Cosmocentric Theory there is an intensification of density as you move towards the stellar Center with a metric shortening and a slowing down of velocity. So would it be correct to say that as we go towards the stellar center we age less?

A15 - First of all, let us mention the phenomenon of aging after a journey into the cosmos in relationship with special Relativity. Let's overlook the analytical developments of the mathematical formulas. We will limit ourselves to the principle of Relativity: "If K and K' are two coordinate systems, one with respect to the other with a uniform rectilinear motion, the development of natural facts (mechanical and electrical) are regulated by the same general laws, if referred to K and if referred to K'".

This means that if you need 3 minutes to cook an egg in an inertial system K, an identical time interval will be needed to cook an egg in any other inertial K', although to the observer K the cooking of the egg in K' appears to have a different duration.

This reciprocity is essential.

The formulas that lead to this result are reversible, so if an observer, located in K, notes on his watch that the cooking time is 3 minutes, another observer located in K', in relative uniform motion with respect to K, notes a longer duration (dilation of the durations), but he knows that physical phenomena obey intrinsic laws and are independent from the inertial system in which they occur; knowing then from experience the real duration of such cooking, recognizes that his valuation of the cooking time in K is only apparent; in fact, inverting the relative formula he will find the real cooking duration (3 minutes) of the egg in K. So the question of reality and appearance of dilatation and of length shortening arises (Chapter IV).

The famous physicist Langevin, a big friend of Einstein, imagined a journey of one of the twins, who starting from earth and pushing towards a distant star then returned with the same inverted velocity to earth and stopped there. Supposing the translating velocity v sufficiently high (near that of light) the twin that had travelled would be still be a child, while the other that remained on Earth, should have been very old.

This paradoxical effect of the apparent flow of time between systems in relative rapid translational motion is prospected as real from Langevin, violating a fundamental element on which the structural validity of the formulas are based on, which is the supposition of a uniform relative motion; now at a motion that is not uniform (the traveller returns) and can not be applied formulas based instead on the hypothesis of uniform motion since the motion of our traveller is not uniform.

Therefore the story of the twins is without foundation because its incorrectly set. Now let's move on to:

General Relativity - Between Special Relativity and the General relativity there is, as it is well known, a fundamental difference: in the first we consider a Euclidean or pseudoeuclidean space, where the physical element is limited to the constant C of the speed of light, while the second Relativity is based essentially on Gravitation.

Using a machine, which we are not describing, the physicist Waltenhofen, demonstrated about the induced current that the excitation of an electromagnet suddenly brakes oscillations (Waltenhofen pendulum). The more intense are the induced currents the more intense is the stop.

Gravitational actions have an effect on the rhythm of vibrating atoms, identifying the gravitational actions with acceleration. These stops are therefore real.

As for time and temporal durations, it is necessary to make a similar distinction to what is done between space and spacial distances.

It is not accurate to assert that time is measured by clocks; the rhythm of time is not time, but reflects the physical conditions (rhythm) that the clock that measures. If in a room A I have a pendulum swinging with a certain rhythm and in room B I have a pendulum that oscillates with a slower rhythm is incorrect to assert that time flows more slowly in B than in A!

There is no "time itself", an idealistic Kantian concept, similar to "space itself"; as there is no empty space, but things, bodies, fields of force, so there is no "time itself", an empty time, the events, the processes and so a method to measure them.

Not the space "itself", but the spatial distances are travelled by moving bodies; not the time "itself", but the temporal durations mark the flow of events. There is no time itself, but the instruments (clocks) that measure the flow of said process-events, which we call durations; only differences in durations are observed, time differences, not time "itself", idealistic abstraction similar to that of space "itself".

That said, especially based on the Waltenhofen experiment, one can conclude that in the gravitational field, since the rhythms are slowed down, we would age more slowly than in the absence of gravity. All of this is admitted by the Endospheric Theory as well as the phenomenons of contraction and expansion due to non-rigid bodies.

Einstein also noted: "The field deforms my rigid **regoli**", and Persico: "Solid bodies are never perfectly rigid, as it is convenient to consider them in mechanics ».

Q16 - We talk about Black Holes and, to be honest, we tal about them in a theoretical way; now is the figure of the Black Hole compatible with the Endospheric theory?

A16 – We Theorize on the apparent phenomenon of implosion (collapse) of the Black Holes, a phenomenon linked to the classic interpretation of the nature of space.

Universe first appears to be expanding starting from a point (White Hole), then reached a maximum extension it would start to collapse by reducing itself to a point (Black Hole). This would imply the creation and destroy of matter, a concept that is rejected by the Endosphere theory, in which we configure an electromagnetic cosmic state where the classical interpreted mass is actually enormously less extensive and enormously more dense than it appears.

Regarding the inertial motions in the new theory, it should be observed that, instead of straight lines, the bodies naturally travel along the curved lines of the field; therefore the astronaut who descended on the moon travelled, without being able notice, the electromagnetic curvatures and not the newtonian straight lines.

Q17 - What is there outside the concave Earth?

A17 - Read the end of Chapter VII. The progressive decrease of the density of the field has no end. Its a fading towards the indefinite. The question is related to the classic concept in contrast with the new concept.

Q18 - How is time conceived?

A18 - Read the previous question 15.

Q19 – Should the Endosphere Theory be considered as a description or as an explanation?

A19 - The words description and explanation are used indifferently. With precision the description is a minute representation , a geometric trace while the explanation is rather an interpretation.

The drawing of a house is a description, its explanation its a clarify of the layout of the rooms, of the windows in sight of convenience or other purpose. The design of the Endospheric Universe is a description, but if the ratios, the relationships, the connections of the different parts, such as for example the behavior of the lines of action of the electromagnetic field, are brought to light then we have an explanation.

Q20 - What exactly is meant by curvature, radius of curvature, flat space and curved space?

A20 - Already in Chapter IV we talked about flat space and curved space.

Here we specify further. As already mentioned it does not make sense to consider curvature as an intrinsic character of physical space. There is no "space itself" (see General Relativity, A15), nor "time itself", for example the empty space of objects, nor the empty time of events, but there are things, bodies, events and processes.

As long as we remain (Chapter IV) in the interpretive field, given by analytical geometry, space-time can assume a suggestive shape of a cone (Minkowski), of a cylinder (Einstein) or of a hyperboloid (De Sitter). In this geometrical representation of the chronotope, the spatial coordinates are reduced to two (circumference); the third is the representation of time. This third co-ordinate in the De Sitter universe is presented curved; it's not about the curvature of time that makes no sense, but rather of a mathematical need to represent the universe itself.

Its already been said that the geometric space is flat if the Pythagorean theorem is valid; if this does not apply, non-Euclidean geometric apply. It is now necessary to add what is meant by null curvature or non-zero. If on a straight line we can fix three points, these will always be aligned. If on a curved line (like a circle) we set three points these will never be aligned.

The radius of the circle passing through a set of non-aligned points has a certain non-zero length that characterizes non-Euclidean space.

If K is a curved line and r is its radius of curvature, we have the relation $K = 1/r$. A space in which each of its lines (geodesic) has infinite radius of curvature, is defined as a plane. A space in which there are lines (geodesics) that have a finite radius of curvature are defined as curved.

Q21 - What is a black hole?

A21 - It is an invisible body because gravitational actions that collapse are so big that they do not allow any radiation leakage; this means that there is no light, that is a "black hole", it is a pure hypothetical interpretation of celestial phenomena in a uniform space (see A16).

Q22 - What does "time dilatation or compression" mean?

A22 - In Chapter IV we mentioned Lorentz's transformation FORMULE MATESTATICHE DA AGGIUNGERE referring to a special treaty of Special Relativity.

Analogous is the expression FORMULE MATESTATICHE DA AGGIUNGERE relative to time t whose explanation is linked to the development of Special Relativity (See Chapters IV and A15). It is understood that from a physical point of view Special Relativity has great practical importance; in the Nuclear Physics laboratories, in which the purpose of producing high energy particles (Synchrotrons, Betatrons, etc.), gigantic machines are used, founded precisely on the laws of Special Relativity.

This important experimentation takes place for relatively short terrestrial distances, where space is still mathematically uniform, the speed of light remaining acceptable c, calculated by Fizeau (Chapter 111).

Q23 - How come the concave land is seen convex?

A23 - In Table X the vault of the sky is shown in the two systems.

The observer sees a celestial object, for example, in B', but the object in reality is located in B. The angle of 45 ° under which the observer sees the celestial object is the same with respect to both B' and B (isogonality of inversion) therefore, the observer is not able to establish where the object really is, despite he is brought to affirm that such object is found in B' by attributing a Euclidean nature to space; however, if he attributed to space a non-Euclidean nature, the observer would then state that the object is found in B. Since we have shown the physical impossibility of the Euclidean behavior of light (Chapter III), the object is really located in B. Is the same phenomenon for which it is stated that the concave earth appears convex (table V). The astronaut in H sees the Copernican earth at the points i, k, j of the convex part, so the Earth that he sees is convex only in appearance, because, for the demonstrated circular inversion, he sees instead, even by taking a photograph, under the same angle the points F, B, G of the concave surface of Earth (see Chapter XIII, R1).

Q24 – How is the "proportionality" of the Doppler effect that would explain galaxy escape explained in the Endospheric Theory?

A24 - Hubble's law would prove a continuous expansion of the Universe, considered by official science as the most "disconcerting" discovery of the twentieth century, while remaining a point of discussion in the numerous exosphere cosmological theories: its admitted a constant of recession of direct proportionality.

In a cosmologist's book we read: "This law seems established on solid experimental bases", but it is not so, because Euclidean space is only a hypothesis connected with multiple weak points in classical theory, in particular the "light year".

So no "expansion" of the Universe, but rather a phenomenon of a gradual energy concentration towards the Stellar Center.

The interpretation of the red shift of the spectral is only a hypothesis as well as that of the flat space of the classical world and of the straightness of such radiation.

Q25 - How do you explain the absence of gravity in space?

A25 - All celestial bodies are endowed with attraction force (Newton). Such actions, as in the case of Earth, are intense near earth's surface and gradually more intense as we advance towards its center. On the outside these actions diminish as you move away from the Earth.

The same happens with the Sun, which has attractive actions much more intense than Earth's whose mass is much smaller than the Sun's.

There is however an intermediate space closer to the Earth than to the Sun, in which solar and terrestrial actions are equal and opposed to each other, and they balance and cancel each other out; in that space there is no gravity. Beyond that space takes over the solar attraction. The same happens, with curved lines of action, in the Endospheric Theory.

Q26 - We read that «distance in space time is zero». What does this mean?

A26 - It is necessary to explain more page 145 of my 1960 volume. The characteristic property of Euclidean space is given by the Pythagorean relationship

(1) FORMULE MATEMATICHE DA AGGIUNGERE

This property can be extended to abstract hyperspace with 4 or more dimensions. Space-time of classic physics is made by Euclidean space characterized by an invariant or absolute (1), with the addition of a proportional independent coordinate of time $ct = X^4$ (c is the speed of light). The new invariant Euclidean invariant is

(2) FORMULE MATEMATICHE DA AGGIUNGERE

where 12 is no longer the square distance of two spatial points but of two events.

To express the constancy of the speed of light c , Einstein and Minkowski laid the following condition

(3) FORMULE MATEMATICHE DA AGGIUNGERE

where the new coordinate $ct = x_4$ is not independent from the three spatial coordinates. the new relativistic space-time invariant is(3) and can also be written as:

(4) FORMULE MATEMATICHE DA AGGIUNGERE

Einstein admitted the expression

(5) FORMULE MATEMATICHE DA AGGIUNGERE

where s if the distance squared of two points of space-time; but this new relativistic invariant differs from the classic invariant (2) for the sign of the time interval at the square x_24 .

The two invariants (2) and (5) have a very different meaning. The annulment of (2) says that the two event-points coincide (happen at the same place and at the same time), while the annulment of (5) coincides with (4) that we can be written as

(6) FORMULE MATEMATICHE DA AGGIUNGERE

where the first member is a spatial distance squared and the second is a time distance squared, then the space-time distance is zero, as shown in (4). The two non coincident points they can however be joined by a ray of light.

Relativistic space-time arises from the condition (3) imposed by Einstein: this condition is hypothetical, like the “universal constant” c of the speed of light.

It should however be noted that within the context of the Special Relativity and limited to the terrestrial space region of the laboratories the formulas are of great importance for the production of high-energy particles (synchrotron, betatrons, etc.).

See A22. In the Endospheric Theory the chronotope therefore is a reality limited to the terrestrial space of the laboratories, where the routes covered by the radiation are minimal and the space is almost Euclidean.

Chapter XIV

SUN AND MOON ECLIPSES AND THE LUNAR PHASES

In Table VIII, XII and XIII the well-known phenomenons of the sun and moon eclipses and the lunar phases are illustrated. To these phenomenons classically viewed we apply the transformation by mutual radius vectors. For clarity reasons, proportions are not respected.

In Table VIII, at the top right, the moon phases are represented according to the Euclidean nature of space. Applying the transformation we are lead to the real phases of the moon, still remaining on observation data. No further explanation is needed: just look at each one of the Euclidean straight line how it is changed into the corresponding non-Euclidean curve. Around the classical Earth we see the external images seen by the terrestrial observer; internally we represent the actual phases like a game of light, shadow and penumbra known to everyone. The same applies to the figure below where the terrestrial observer (see arrows) is located on the terrestrial concavity.

Let's move on to the classical eclipses on Table XII: the solar eclipse happens when the moon is interposed between the Sun and Earth, while the lunar eclipse is when the earth is interposed between the Sun and the Moon. Observe the games of shadow and penumbra classical known. In Table XIII, with our procedure of inversion, you have the same images viewed classically. When the moon goes through the pseudo-funnel with pseudo-spherical walls between the terrestrial observer and the Stellar Center, we have the lunar eclipse which penetrates into the shadow and penumbra light determinated from the pseudo-funnel and the former images appear to the observer the same visions images, whether he is on the convex earth or he is instead on the concave Earth. The solar eclipse occurs when the Moon crosses the other pseudo-funnel interposed between the sun and the terrestrial observer.

Chapter XV

PLANETARY ORBITS

Demonstration that the outer planets in the endospheric system, even though the orbit around the stellar center, from any point in space appear to orbit around the Sun. This demonstration was carried out by Mr. Mario Pavone.

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- The observation point O is given, on the orbit plane, with coordinates CO' and O'O in a rectangular system with origin in the inversion center C and with an axis passing from the sun O'.
- A generic point P is considered on a straight visual point of view outgoing from O.
- The distance OP and the angle «a» that the view forms with the normal OO' to the joining with the Sun with the reversed center are considered as polar coordinates in a system with the pole in O.
- These coordinates are transformed into rectangular coordinates in a system with the origin in O: OP' and P'P they are obtained.
- O'P'' and O'P' are the coordinates of P in a rectangular system with the origin in O'.
- To O'P'' we add CO': we have the CP'' and P''P coordinates of P in a rectangular system with the origin in C.
- These coordinates are transformed into a polar system with the pole in C: the distance CP and the angle «b» are obtained.
- The point P''' corresponding to P in the inversion is found dividing the square of the inverse radius R for the distance CP.
- The distance CP''' and the angle « b » are considered as polar coordinates in a system with a pole in C.
- These coordinates are transformed into a retangular system with the origin in the center of the mechanical limits of the machine's tracing, corresponding to the infinite, the axes of this system are parallel to the tracing plane.

The figure accompanying this demonstration has the purpose of illustrating all the operations of the procedure, despite being only approximate (P and P''' for example, which correspond in the geometric transformation, do not result situate in the exact points); instead, the tables made with the help of

electronic devices HEWLETT PACKARD on which follow some important clarifications are exact.

Lets considered the case of an hypothetical observer that, in order to verify the validity of the Endospheric Theory, he set him self on a point in space to ascertain whether Mars orbits around the Sun or around the Stellar Center.

Lets starts from the heliocentric configuration considering three different observation points lying on the planet's orbit plane:

- 1) a point outside the orbit;
- 2) a point inside the orbit;
- 3) a point on the Sun.

For each of the three cases, beams of visual lines are considered, that in the Copernican conception they are obviously straight lines, starting from the observation point and directed towards various points of Mar's orbit (assimilated as a circle).

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So the curved lines of the cosmocentric system that correspond to those straight visuals are constructed.

To do so, on each line of sight, we considered a series of equidistant points starting from the observer up to the planet. For all the points on the same line, we calculated the corresponding points in the computer drawings, the observer is indicated with O; the Sun and the Stellar Center with two dots. The exosphere situations have: numbers 1, 2, 3 with which the corresponding endospheric situations are indicated.

Chapter XVI

WEAK POINTS OF THE CLASSIC THEORY EXOSPHERICAL THEORY TO THE LIGHT OF THE ENDOSFERICAL THEORY

1) Cepheids and their common behavior

De Sitter wrote: "All our knowledge about the size of the galactic system and on the dimensions of the Universe are fundamentally based on the variable stars called Cepheids".

Miss H. Leavitt derives a fundamental law for the determination of celestial distances, which binds the absolute greatness M of a Cepheid to its period P. Armellini observed that it seems proven that the Cepheids are pulsating stars, depending on the duration P of their pulsation from their mass and hence from their absolute size M.

On 171 Cepheids Margherita Gussow found one hundred with a period between one day and one month. Among these there were a group of 40 or 50 of an appropriately equal period (on average 5 days); «Cepheid variables of the same period», Eddington writes, they are all very resembling; so a Cepheid of a 5 day period, wherever discovered, goes practically considered as a copy of the S Cephei.

These common characteristics would make one think of a physical bond, to reciprocal actions due to proximity, but astronomical calculations tell us that the distance between stars is immense.

To my question addressed to Prof. Leonida Rosino from the astronomical observatory in Padova, on the 17/12/57 he replied to me that: "there are other Cepheid Galaxies having the same period, but not physically associated, is possible, but it would be a purely casual event".

Now, while Euclidean kilometers measure constant distances and, being the space homogeneous and isotropic, the energy in them is uniformly distributed, the non-Euclidean kilometers of the non-homogeneous and non-isotropic endospherical space, measure reliable distances functions of the local radius of curvature; the more they shorten the denser is the energy distributed in them.

Densed into the cosmic center, they are predictably physically associated: their great likeness attributed "To casualty" in the classic system, in the new system a rational explanation is susceptible.

2) The cosmic rays and their symmetrical fall on the terrestrial surface

«The Earth, Vercelli writes, is constantly immersed in an incessant hail of very fast atomic particles, which

come from all over the Universe, enter the atmosphere, bump into molecules causing

conspicuous effects, reaching many of them till the ground.

From the open spaces about 20 particles per cm² per minute enter the atmosphere. Most of these particles are protons with a small percentage consisting of heavier nuclei.

The earth, gigantic magnetic field, deviates from their course the cosmic rays and allows unto the atmosphere only particles which have energy above certain limits, measured in electrovolts (ev) equal to $1,6 \cdot 10^{-12}$ erg, a very small measure for which it is used often the multiple mega-electron-volt equal to one million ev.

Cosmic rays pass through our bodies every day and pass unnoticed. Armellini writes: «These radiations can not come from the Sun nor from the Stars. They are probable due to the processes of formation of the elements that take place in the nebulae or in the tenuous matter widespread in the interstellar space». A circumstance of the highest interest reveals Eddington: «Because cosmic rays fall symmetrically around earth's surface, astronomy has nothing to reveal that presents the required symmetry ».

Perhaps we could find in cosmic rays a subject in favour of the closed spherical space, because in a non-closed system it would be a weird combination that the earth was so centrally collocated as to receive the rays in equal measure from each part. Undoubtedly it would be a strange combination!

In the Endospherical earth such a symmetrical fall, being the source of cosmic rays the stellar center of the Universe, is a completely predictable and natural fact.

3) Planck and the analogy between the atom and the planetary system

Lammel writes: "we live in an immense space where a relatively small amount of matter is found, so we can reasonably call it a desert ». Eddington as well, referring to the universal space, calls it empty, deserted. «we have on Star every twenty cubic parsecs » informs us Armellini.

Lets recall that a parsec is a length equal to $3,085 \cdot 10^{12}$ Km, that is more than 30 million of million of kilometers.

Supposed stars evenly divided, imagining to be on a star, to reach another one, traveling at the speed of light (300,000 km per second) it will take us more than 6 years.

Eddington calculates an initial average of the density of matter of the Universe to be equal to $1.05 \cdot 10^{27}$ gr. per cm³, which would be an hydrogen atom every 1580 cm. For Armeliini, if all the stellar matter was uniformly distributed in space, one would have a density of matter equal to one gram for each cube having 100,000 kilometers per side.

An important circumstance is revealed by the great German physicist Max Planck (1858-1947): «According to Niels Bohr's fertile theory (1885-1902) the electrons of an atom move around the nucleus according to laws very similar to those that the planets move around the Sun. Instead of gravitation takes over the attraction of opposite charges of the nucleus and of the electrons.

But there is a single difference: the electrons can circulate only on well-determined orbits, and differ one from the other in a discreet way, while in the case of the planets no orbit seems preferred over another ».

This does not happen in the Endospheric Universe, where the planets cover equipotential surfaces, that is discrete levels of the non-Euclidean space of the field. Therefore, said singular difference in relation to the electronic orbits of atoms disappears: in the planetary system the planets travel through equipotential surfaces and so energy levels resulting in a fully acceptable analogy between the atom and the planetary system.

4) Rigid and non rigid motion - Inertia - Gulliver - Measurements

The rarity of matter cannot not surprise you. This is a uniformity show, for which, except for a few singular points consisting of some celestial bodies, the classical space can be considered «empty», «desert», so that in some of its points, each of its joints, does not differ in anything from any of the other points, from any other joints, in sharp contrast to the multiform variety of nature, which is a change, constant renewal, incessant process: it never repeats.

"Physical space can not be lacking in characteristics (curvature)" says Eddington. It is usual to repeat in physics that all hydrogen atoms at their normal state have the same dimensions or the same range of electrical charge. But what do we mean with this? Or, to put the question in the inverse form, what would it mean to say that two hydrogen atoms have different dimensions, similar in structure but built on a different scale? In the "Journeys of Gulliver" the Lillipuzians were about 15 cm tall, their highest trees reached 2 m , the animals, the houses were proportionally large. At Brobdingnag people were as tall as our bell towers, a cat seemed three times bigger

than an ox.

Intrinsically Lilliput and Brobdingnag were exactly the same; this was precisely the principle on which Swift had build his story. It took a Gulliver from the outside - a sample of a foreign length - to detect the difference. As for our comparison between the two hydrogen atoms the case of Lilliput and Brobdingnag is repeated: to give a significance to the difference we need a Gulliver that has ubiquity.

Einstein said that what he called a meter is a constant fraction of the radius of curvature of space-time for that place and that direction; measure in meters is equivalent to measuring in terms of the local radius of curvature which is the true Gulliver having the gift of the ubiquity; and that is the constant submultiple of the radit o0s of curvature of the place where the object to be measured is found.

Two hydrogen atoms have the same dimension, although they are in two different places, nevertheless they have the same submultiple of the local radius of curvature.

In all our measures we do nothing but compare lengths and distances using the same submultiple of the local radius of curvature. Every point and every direction of the endospherical space is characterized by the local curvature of space.

Eddington finds more plausible a space with characteristics (curvature) than a flat space. The non euclidean space of the endospherical world has a variable curvature, which is what brings the non-rigidity of the motions. The ordinary experience at first approximation presents us with rigid movements, but just as we reflect, for example on the common phenomenon of temperature, which contracts and expands bodies, and the fact that, if you move from a point to another the temperature undergoes variations (large or small that they are) it must be admitted that even in ordinary space, and limiting ourselves only to the temperature, the motions are ne-nstein asserted: "The gravitational field deforms my rigid **regoli**". The endospherical space is not inertial because inside of it, the acceleration is never null.

5) The light years

A previous chapter is entirely dedicated to the so-called «light year», of which we have shown the physical impossibility with a wealth of valid arguments to which we refer back the reader.

6) Dispersion of the almost totality of the energy emitted by the sun and from the stars of the classical system

On this important topic as well we have dedicated a previous chapter, "the law of energy conservation", in which its emphasizes the enormous quantity of solar and stellar energy that in the Esospherical Universe are largely lost in contrast with the principle of the minimum action, which Maxwell called "great law of parsimony of nature".

This colossal quantity of energy, notes Lammel, in the classic system "sinks into infinite and unreachable nothingness". These radiations instead revolve in the endospherical spaces without even the minimal dispersion.

7) The Earth the densest body in the classical solar system

The planets found on the other side of the asteroid area are called internal, that is Mercury, Venus, Earth and Mars, being this last one as much superior as interior.

We will distinguish the planets: those superior to the asteroids area, called externals, and the other one called internal. Lets now consider the following table in which the upper row indicates the density with respect to water of the sun and the planets and the lower line the minimum distances of the planets and the Sun from Earth (distances are expressed in millions of kilometers):

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For the superior planets the table of distances was obtained subtracting their average distance from the Sun the distance from Earth-Sun; for the inferior planets subtracting from the Earth-Sun distance their average distance from the Sun.

To the growing succession of distances (including the Sun) corresponds a decreasing sequence of densities

(except for Saturn and Neptune). So, in the classical solar system, the densest planet is Earth. The outer planets and the Sun have a much lower density than the internal planets. The celestial bodies of the solar system, the farther they are from Earth the lower the density they have. It affects the fact that Earth has a situation in this field, very particular, privileged. We could have expected such a position for the Sun in the classical system; instead its the Earth the densest celestial body of the classic solar system.

To this, it is added another circumstance: with Earth's growing distance, decreases the density of the body (with little exceptions). This fact as well places the Earth in a singular position with respect to the other celestial body.

Its a "strange combination", would say Eddington.

In classical theory, the Earth is a planet like any other, to the point that, extrapolating, a physicist like Castelfranchi has revealed the inconsistency of the "Geometric Clock of the inhabitants of our tiny planet." Therefore, not even a shadow of privilege.

In the new theory we follow a more rational line, always in accordance with the observed facts. The same fact follows from the structure of the world itself. This succession in the new concept is inverted.

As Earth constitutes the peripheral zone of the Universe, it is much less dense than the celestial bodies that are in proximity of the source of the field, where the spatial curvatures are very sensitive, the very concentrated energy and the masses of the stars are very dense. The facts noted in the new conception no longer have an accidental character as in the old system, but satisfy at the beginning sufficient reasoning, they are rationally explained. I have already referred to the Earth's density in chap. VII.

8) Comparison between the seasons in the two systems

lets recall that the classical Earth, when it is at its perihelion, its closest to the Sun of about 5 million kilometers as to when its located in its aphelion (northern hemisphere) in the winter season, contrary to what could be expected.

This difference (5 million kilometers compared to almost 150) is basically explained by official science through the consent law, for which the incident intensity decreases with the growth of the ray's obliquity on the constant unit of surface hit. Come forth the effect of continentality of the northern hemisphere, which prevails over the radiation determining in the winter an average thermal inferior in the northern hemisphere rather than in the southern one. Another cause is the action of the most extended oceans in the southern hemisphere than in the northern hemisphere.

The causes of temperature differences in the various seasons are: in the summer semester in each hemisphere the day is longer than the night, and the Earth receives more heat than what it loses (vice versa happens in the winter semester). The main reason is however linked to the first law of Lambert's cosine, generalization of the law of the inversion to the square of distances

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And its the illumination intensity directly proportional to the emission intensity i and to the formed from the normal incident ray with the affected area and its inversely proportional to the squared the distance from the source.

The famous physicist Fred Hoyle built a model that reproduced the arrangement of the Sun and the planets by making a reduction scale of about one billion. And obtained this result: the sun having 1.4 m in diameter and the Earth having a diameter of about 1.5 cm. If we place this Sun at a distance of 150 m. from sphere of diameter 1.5 cm it will certainly not be possible the heating of a sphere to 50 degrees above zero in the equatorial area and 70 degrees below zero in the polar areas of the sphere.

In Table VII its represented with the upper figure the phenomenon of the seasons (a figure familiar to all students) with a serious mistake: earth is represented at a distance from the sun enormously closer than what we want to happen in reality. Observing Table XI, it is noted that the difference between the half straight rays of solar straight rays that reaches the 6 pm point, passes the half-straight that reaches the 12 point of only 6.370 km, a difference that is negligible compared to 149.6 million Euclidean km (Earth-Sun distance). The intensity with which the solar radiation reaches both the equator and the poles in the classic system can be consider identical. The same does not happen in the new concept.

Numerically the distances and the differences of distances considered above in the two systems are almost

identical. But in the endospherical world, the calculated kilometers are not Euclidean. This means that, as we can observe in the tables. XI and XVI when the Sun is found for example at the zenith of the equator its radiation reaches the equator, point 12, perpendicular to the poles, point 6 pm, tangentially (and so far nothing different happens in the classic system); but now we will find an important difference: the endospherical radiation that at point 12 reaches the equator, has a geometric length (see Table XI) equal to 2/3 the length of the radiation that reaches the pole (point 6 pm). So the Solar energy that reaches the pole is more rarefied (therefore weaker) of the one that reaches the equator.

In an electromagnetic field (Table XI) the radiation that reaches the equator is more intense (the energy is less rarefied) than the one that reaches the pole, while in the classical system the solar radiation are admitted to be almost all equally intense!

We have examined the scaling of about a billion done by the physicist Fred Hoyle who built a model reproducing the classical arrangement of the sun and the planets. This model emphasizes, while understanding the needs of space, the error of the relationships, the enormous disproportion of the real Sun-Earth distances as taught in schools (see also figure at the top of Table VII).

In the cosmocentric conception, things change profoundly as shown in the lower part of the table VII where the endospherical seasons are represented. The figure represents the helicoidal path of the Sun in the sky. The line that unites all the points around the stellar band where the sun is observed at noon, during all the days of the year, is the ecliptic, the zodiac or the apparent path in a whole year. For an observer at point N the upper spires represent winter, those at the center spring, the lower one the summer, and then again those in the middle are autumn, and again the superiors are winter. The circular route of the sun is seen in expanded shape from the earth as it is also seen expanded the whole helical path.

Chapter XVII

THE TWO SYSTEMS

Archimedes

In geometry you can easily study the solid figures with straight edges. Archimedes committed himself to find a formula to calculate the area of the spherical surface, but ran into the difficulty of developing such surface on a plane, which did not find with the other solids.

He arrived at his famous formula looking for a solid that could be developed on a plane equivalent to the non-developable surface of a sphere. He achieved this goal by building with metal sheets of uniform thickness the surface of a sphere and a cylinder circumscribed to the sphere having as a base a circle equal to the maximum circle of the sphere.

Archimedes acknowledged - and this is what his discovery consists of - that the sheet of the spherical surface and that of the cylinder circumscribed around the sphere had the same weight.

Developing the surface of the cylinder on a plane he would obtain a rectangle with a base equal to the aforementioned maximum circle and height equal to the diameter of the sphere:

$2\pi r$ (base of the rectangle) $\times 2r$ (height of the rectangle), and wrote the famous formula $2\pi r \times 2r = 4\pi r^2$.

Because the sheet of the sphere and that of the cylinder had the same weight he assumed as surface area of the sphere the aforementioned formula $A = 4\pi r^2$ (which was confirmed about 1800 years later in the relevant integral calculation of Newton).

Developable and non-developable solids

The cylinder can be developed on a plane; to its development Euclidean geometry is applicable, while for the sphere it is not developable and to search its superficial area Euclidean geometry is not applicable. The two geometrical figures of equal areas (measurements) superficial, and so equivalent, have a different structure, one Euclidean and the other non-Euclidean. The two theories of universe, exospherical and endospherical, similarly have two equivalent spaces, headquarters one and the other of a cosmos having the same amount of matter, but with different physical structures: the first has rectilinear lines of force in which Euclidean geometry is applied, the second has lines of curved lines of force, to which non-Euclidean geometry is applied, though being equivalent to each other (they have equal quantity of matter).

Transformation geometries

The two equivalent spaces are linked by a geometric transformation that allows you to move from a space to the other (and vice versa) indifferently.

The difference between them is the way in which matter is distributed: in the first its enormously rarefied, except for a certain number of singular points, in the other enormously concentrated.

Both spaces correspond to each other in a way that to each point of the first corresponds to one in the other (and vice versa). Such geometrical correspondence is governed by an algebraic and geometric operation called transformation for reciprocal radius vector.

In figure on Plate II, to point 2 outside the circle, corresponds point $\frac{1}{2}$ inside the circle. Indeed leading from point 2 two straight tangent lines to the circle in points a and b the conjuncture of these two points cut at the $\frac{1}{2}$ point the conjuncture point 2 with the center of the circle.

Similarly, the corresponding points 3 and $\frac{1}{3}$ are obtained, etc Being a $\frac{1}{2}$ the reciprocal of 2, the correspondence takes the name of transformation for reciprocal radius vector. The infinite external points correspond to the infinite internal points and viceversa.

It is demonstrated that two straight line segments, even of different lengths, are both equally made up of infinite points.

Galilei and the infinite

In his «Dialogue» Galilei wrote: «An infinite greater than infinity seems to me a concept that can not be understood in any way.

These are difficulties that derive from the discussion that we intercourse with our finite intellect around the infinities, giving those attributes that we give to finite and finished things ... We can not say that an infinite is greater, less or equal to another infinite ... When they ask me, given lines of unequal length, how can it be that there are more points in the majors than they are in minors, I answer that there are no more no less, and neither as many, but each one is infinite ».

Comparison between exospherical space and endospherical space

In the aforementioned transformation the straight lines of a figure are changed into curved lines. The whole exospherical universe dominated by straight lines changes in the whole universe dominated by curved lines; in the first one dominates Euclidean geometry, in the second a non-Euclidean geometry.

Given the homogeneity and isotropy of the exospherical space, two Euclidean kilometers represented by straight line segments in length between them are transformed into non-Euclidean kilometers represented in a non-homogeneous and non-isotropic endospherical space from equal or unequal arches/arcs depending on whether we have the an equal or unequal radius of finite curvature.

The measurement of a length always implies the comparison with a sample length. In a space where we apply the Euclidean geometry the straight lines have null characteristics because in each point there is an infinite radius of curvature. In a space where we apply non-Euclidean geometry the arches/arcs or sectors of circumference have a radius of finite curvature.

The international meter is the same in every point of the flat space, euclidean, while in a curved, non-Euclidean space, the meter is a submultiple of the local radius of curvature. To say that two hydrogen atoms have the same size means that the size of each of them is the same fraction of the curvature of the space where they are located.

Rigid movements are typical of a space free of any characteristics such as Euclidean, while non-rigid movements belong to/**lies on?** a non-Euclidean space with a variable curvature in which bodies, as they move, do not numerically change their dimension; but the unit of measurement with respect to which the bodies are measured change, being such unit of measurement not a submultiple of the local radius of curvature, ie of the place occupied by the body, instant by instant, during its motion. The endospherical field is subject to processes of contractions and dilations.

Einstein said: "The gravitational field deforms my rigid **regoli**". An observer who follows a moving body could in no way verify such contraction or dilatation, since he too, along with his measuring instruments, would be

subject to the same laws to which this body is subject.

Whichever the definition accepted by the **pure** geometer, the physicist must define space as something that is characterized in every point by an intrinsic quantity that can be used as a base to measure the objects placed there. The physical space can not be lacking in characteristics. In geometric terminology the characteristics of space are drawn as curvatures.

Eddington writes: "the indifferentist identity and the **nothing** cannot be distinguished philosophically. The reality of physics are inhomogeneities, events, changes". The uniformity of space and the consequent rigidity of the motions constitutes one of the weakest points of the exospherical conception of the Universe.

Chapter XVIII

GREATNESS OF THE UNIVERSE

Kant said: "The head is in space, and yet space is in the head ". The great philosopher meant to say that the fascinating greatness of the universe has essentially a subjective foundation. What does it mean to say that the Universe is big?

Let's see what Lammel said (4): "We live in an immense space, in which there is relatively a small amount of matter, so with reasoning we can call it deserted".

Also Eddington (1), referring to the universal space, calls it "empty", "deserted". Armellini notes (9): "We have a Star every 20 cubic parsecs". Lets recall that a parsec has a length of 30 million of million kilometers.

Imagining to be on a star, to reach another star at the speed of light (300,000 km per second), we would employ more than 6 years. Again Eddington (1) calculates a medium density of matter in the Universe equal to one atom for every 1500 cubic squared. The Star Antares has a density 2000 times lower than that of air: this means that if we wanted to go on that Star we would not even find it because we would be travelling in almost empty space inside of it!

So, therefore, the street man that remains fascinated by the greatness of the classical universe has not fully realized that greatness means extension; as regards to matters in the Universe, on average, there is very little. The charm, therefore, of the greatness of the Universe is reduced to the fascination of the unlimited almost desert extension!

Let's move on to this other consideration: if we ask the street man if he considers bigger the peel or the seed of an orange, he would probably answer: the peel. Because for him greater is the extension. But the philosopher would answer: the seed. Because in the seed there is the genetic code of innumerable orange plants.

For the philosopher, great is the content, the creative power, the development, the vastity of vital force. If we consider the discovery of energy contained in an atom, energy that has meant the destructive capacity of an atomic bomb (think of Hiroshima), if we consider the dimensions of a nucleus of an atom, calculated around one millionth of a millionth of a centimeter, we will understand that greatness can not be valued in the sense of extension, but in the sense of power.

So therefore whoever suspected that the gigantic walls of the terrestrial concavities enclose a tiny universe should reconsider and reflect on the psychological nature of a subjective evaluation of the extended greatness of the classic Universe, a greatness that corresponds to an almost unlimited desert!

The Endospherical Universe, with its hyper dense central firmament and its immense potential energies, must appear at the attentive observer infinitely large, because there inside of it there is power and in action an

exterminated number of living beings, animals, plants, cells and atoms.

This firmament that dominates and leaves us admired has an infinite greatness. In place of the "empty" extension, of dissipation and dispersion, inherent in the classical system, we have, in the cosmocentric system, the conservation, the concentration and the power.

The new idea of the world suggests concepts of collaboration, of solidarity, of union, of synthesis. The infinitely large potential coincides with a definitely small geometric.

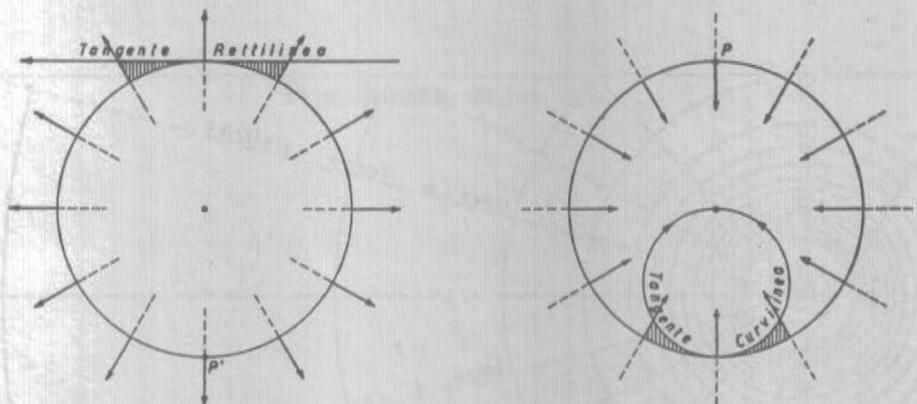
The power and act of Aristotle seem to find a physical reasoning in the cosmocentric system. The Universe is a living organism. Laplace said: "Nature has the same models in different sizes". Earth is an immense cell that encloses the Universe, where life sprouts and where greatness is identified with the absorbed thought of man that aspires to knowledge and truth.

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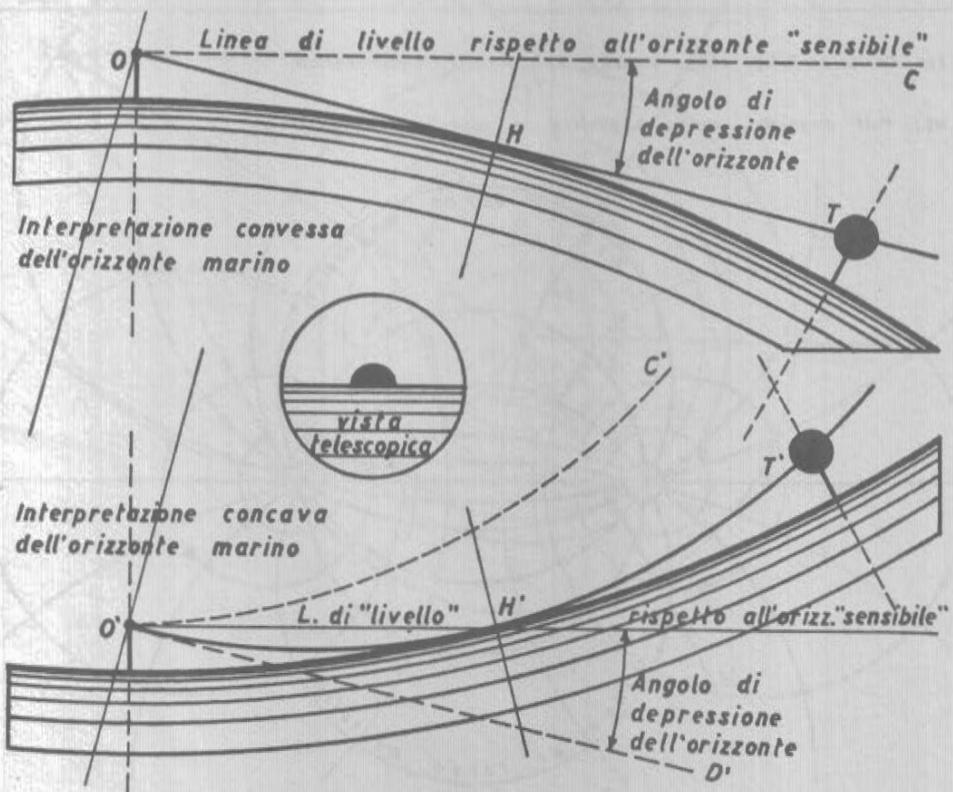
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Le due interpretazioni

e le due "prove"

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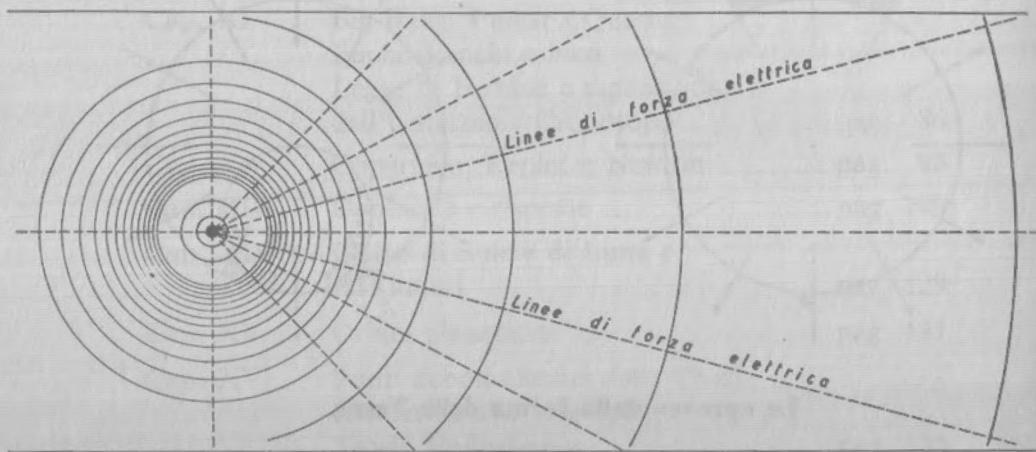
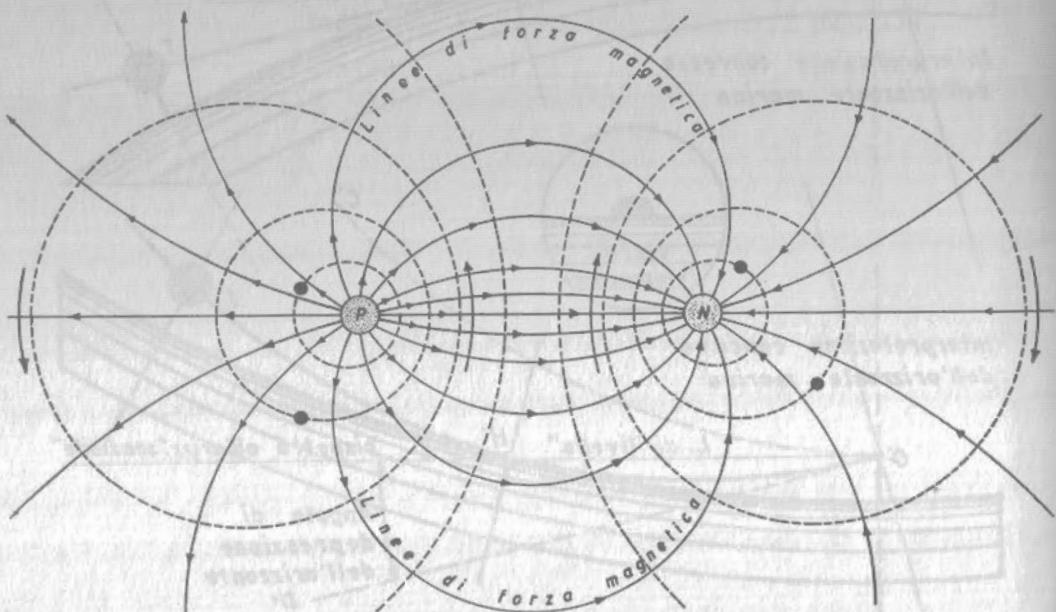
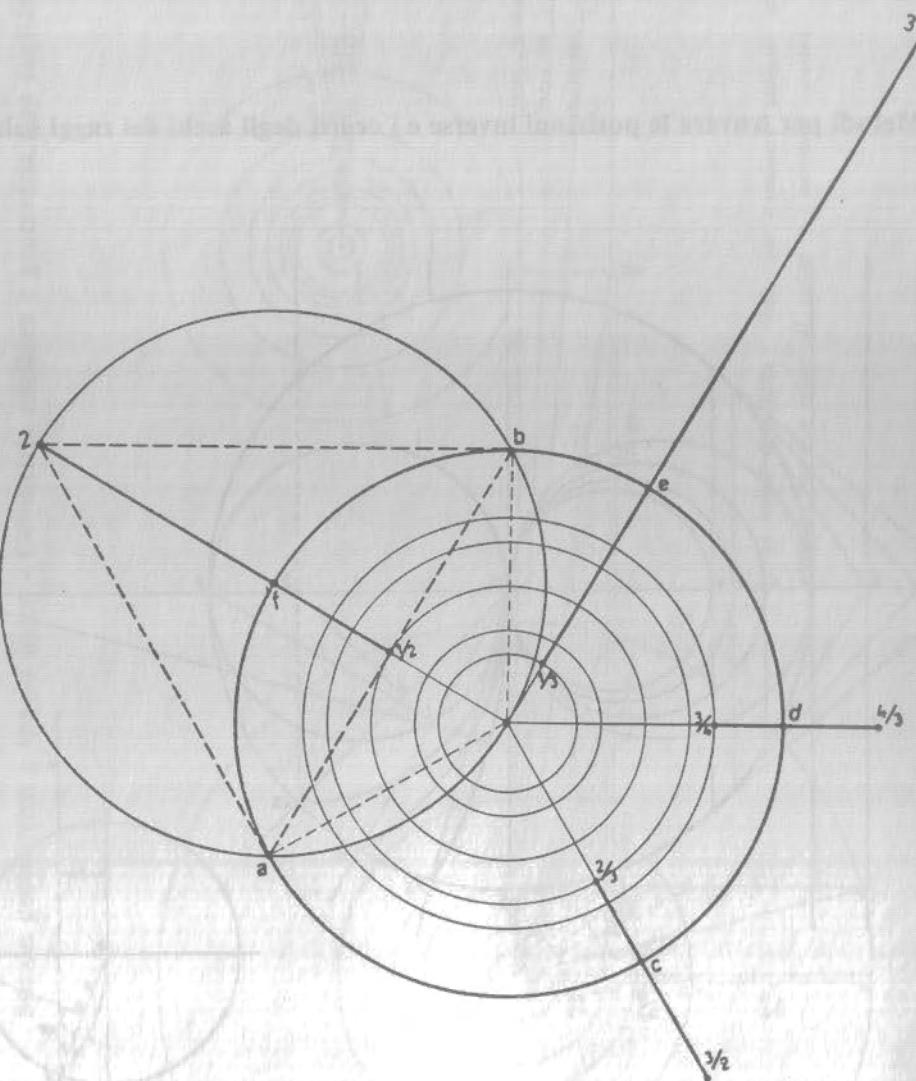


Fig. sup.: Carica elettrica, campo elettrico e superficie equipotenziali.

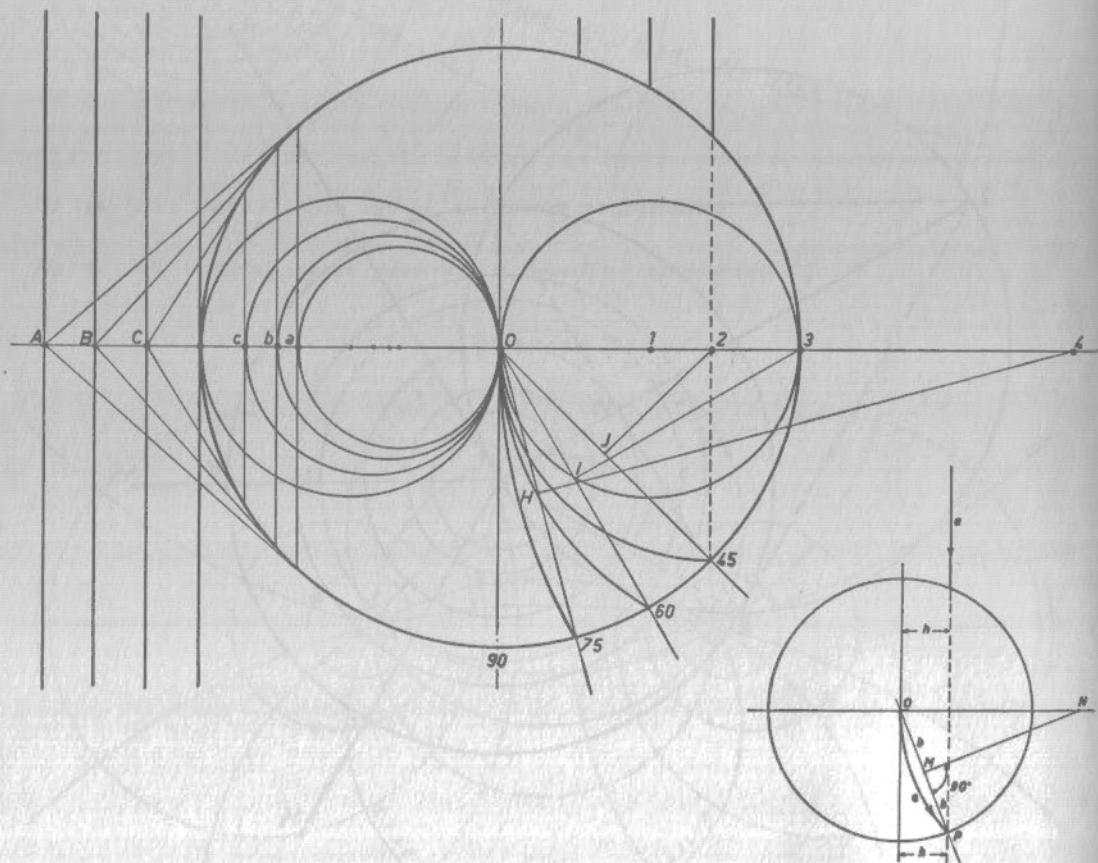
Fig. inf.: Poli magnetici, campo magnetico e superficie equipotenziali.



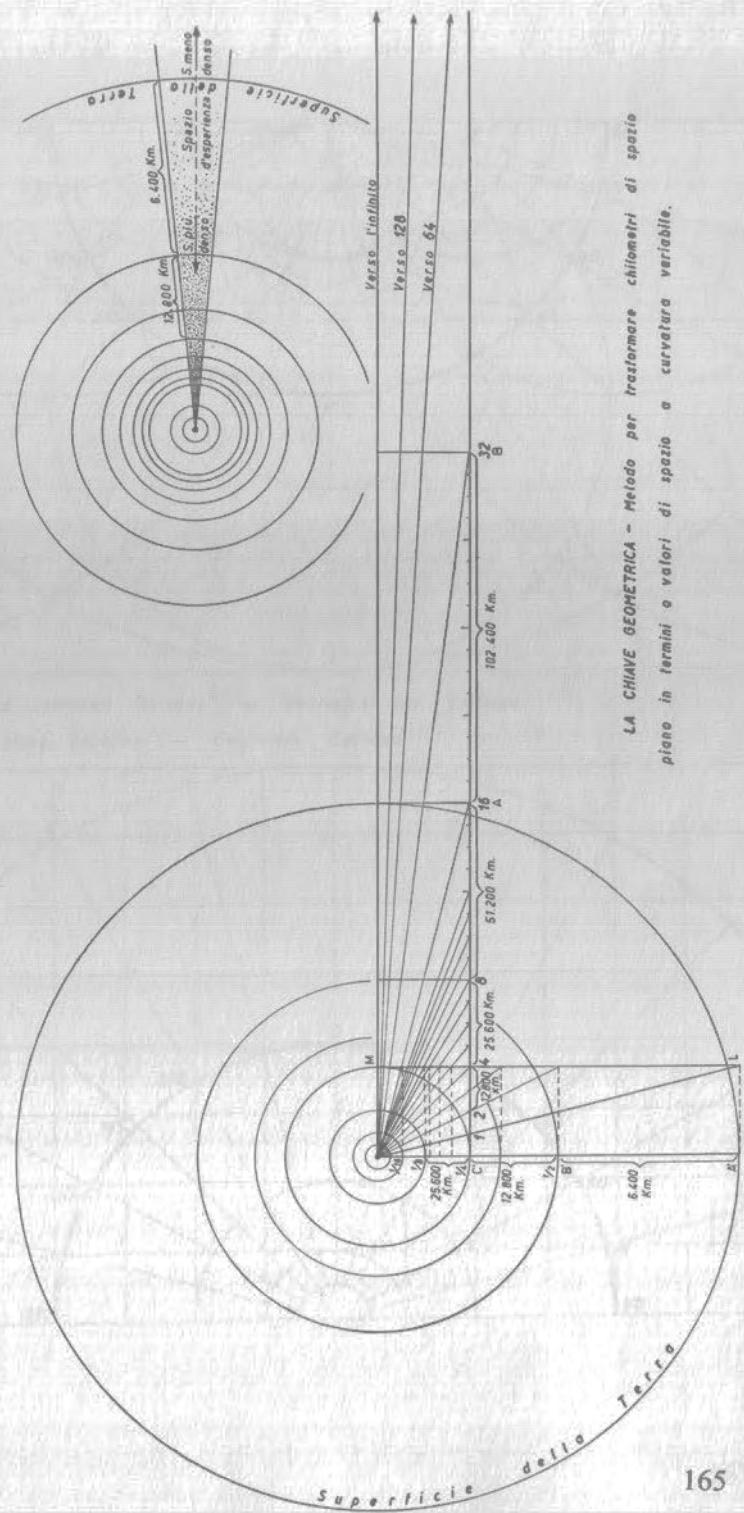
Procedimento di inversione.

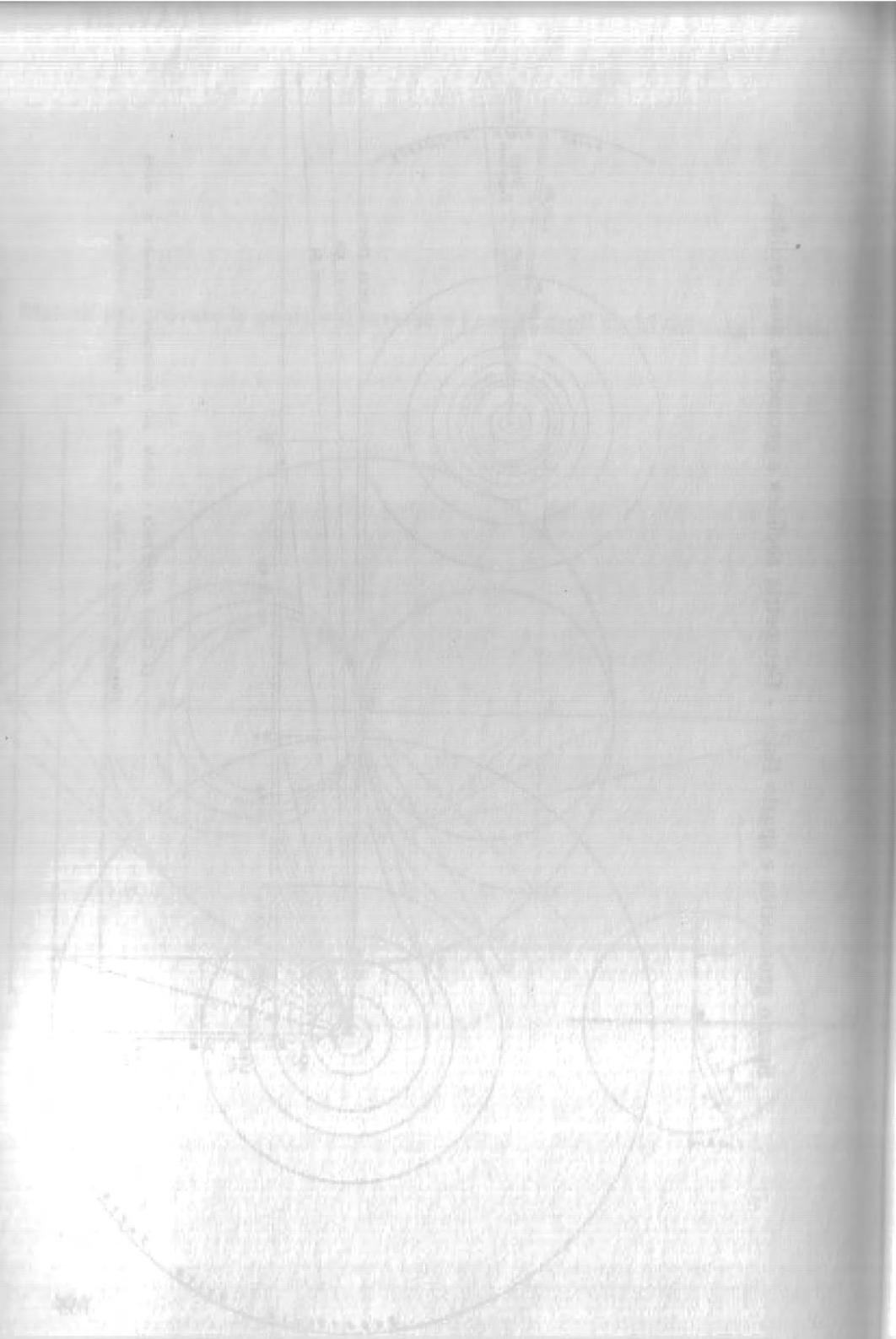


Metodi per trovare le posizioni inverse e i centri degli archi dei raggi solari.



Spazio geometrico e spazio fisico - Geometria euclidea e geometria non euclidea.





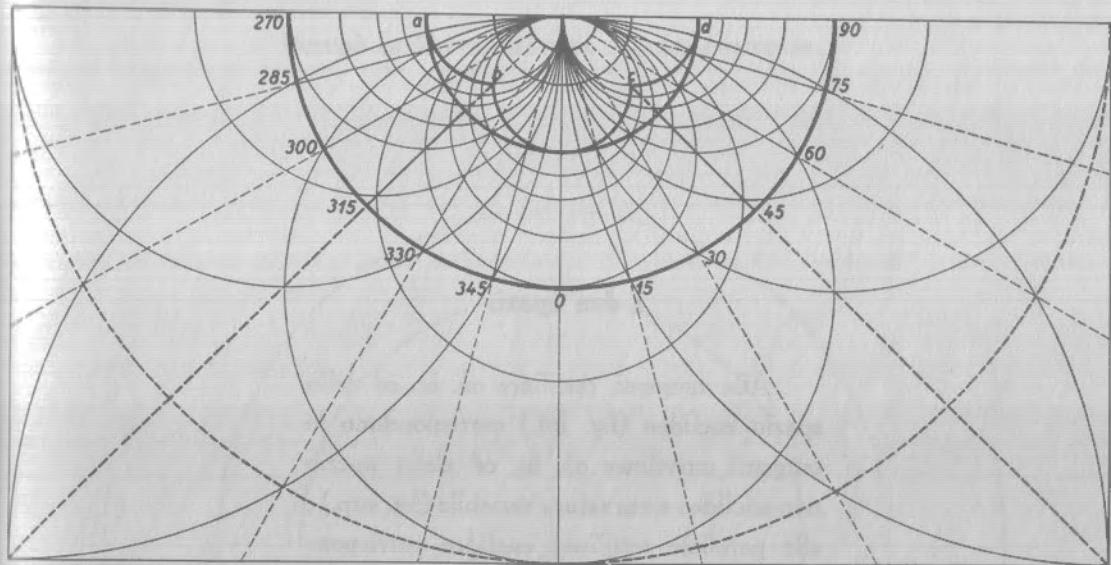
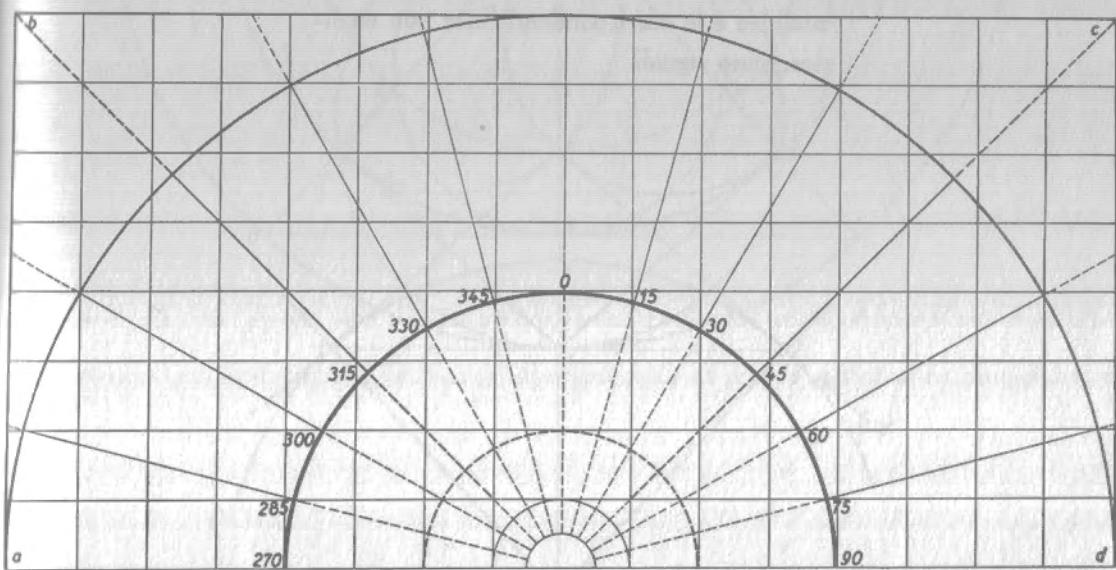


Fig. sup.: Spazio a curvatura variabile — Geometria non Euclidea

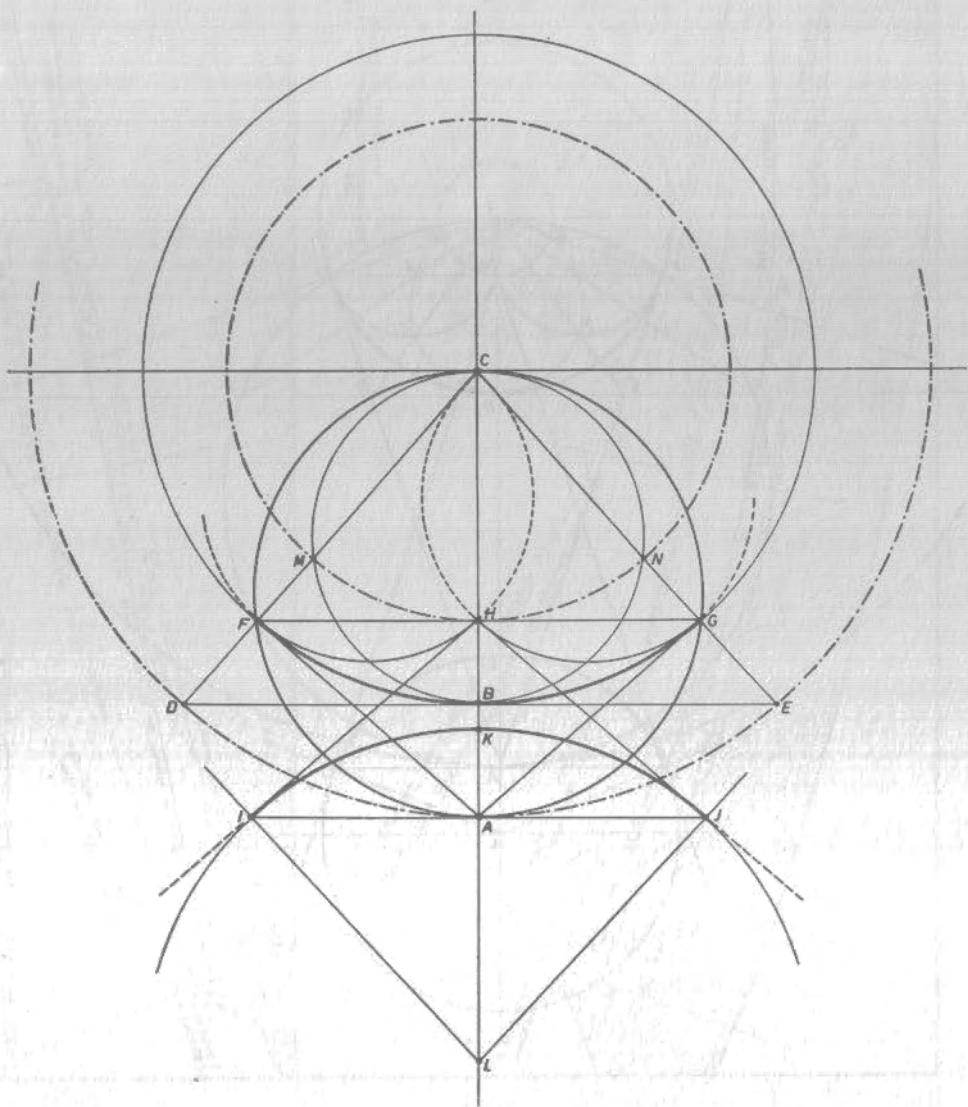
Fig. inf. : Spazio piano, uniforme — Geometria Euclidea



I due spazi.

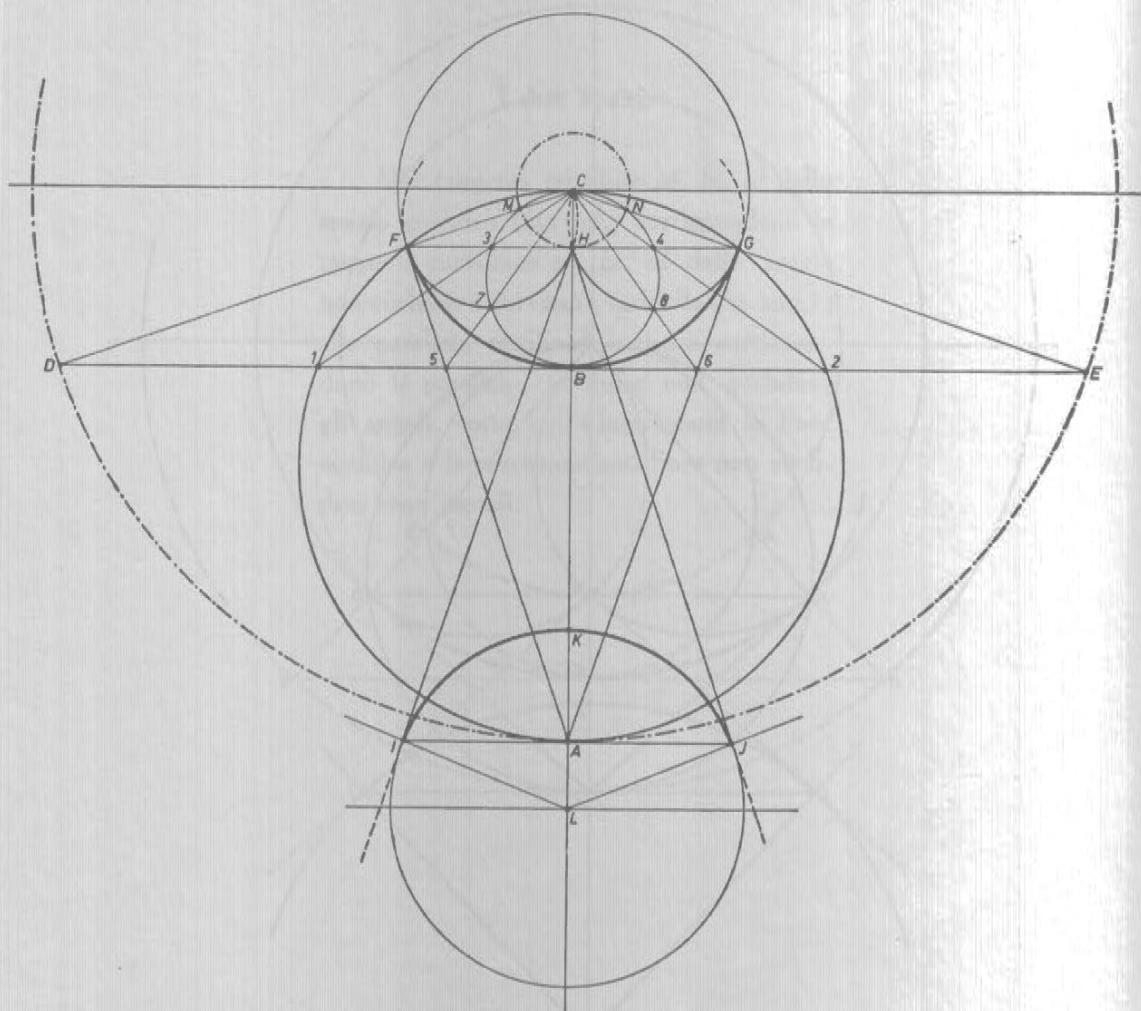
Alle tangenti rettilinee ab , bc , cd dello spazio euclideo (fig. inf.) corrispondono le tangenti curvilinee ab , bc , cd dello spazio non euclideo a curvatura variabile (fig. sup.) ; alle parallele rettilinee euclidee corrispondono le parallele curvilinee non euclidee ; gli angoli, sotto cui s'intersecano le linee euclidee e le corrispondenti linee non euclideanee, sono uguali.

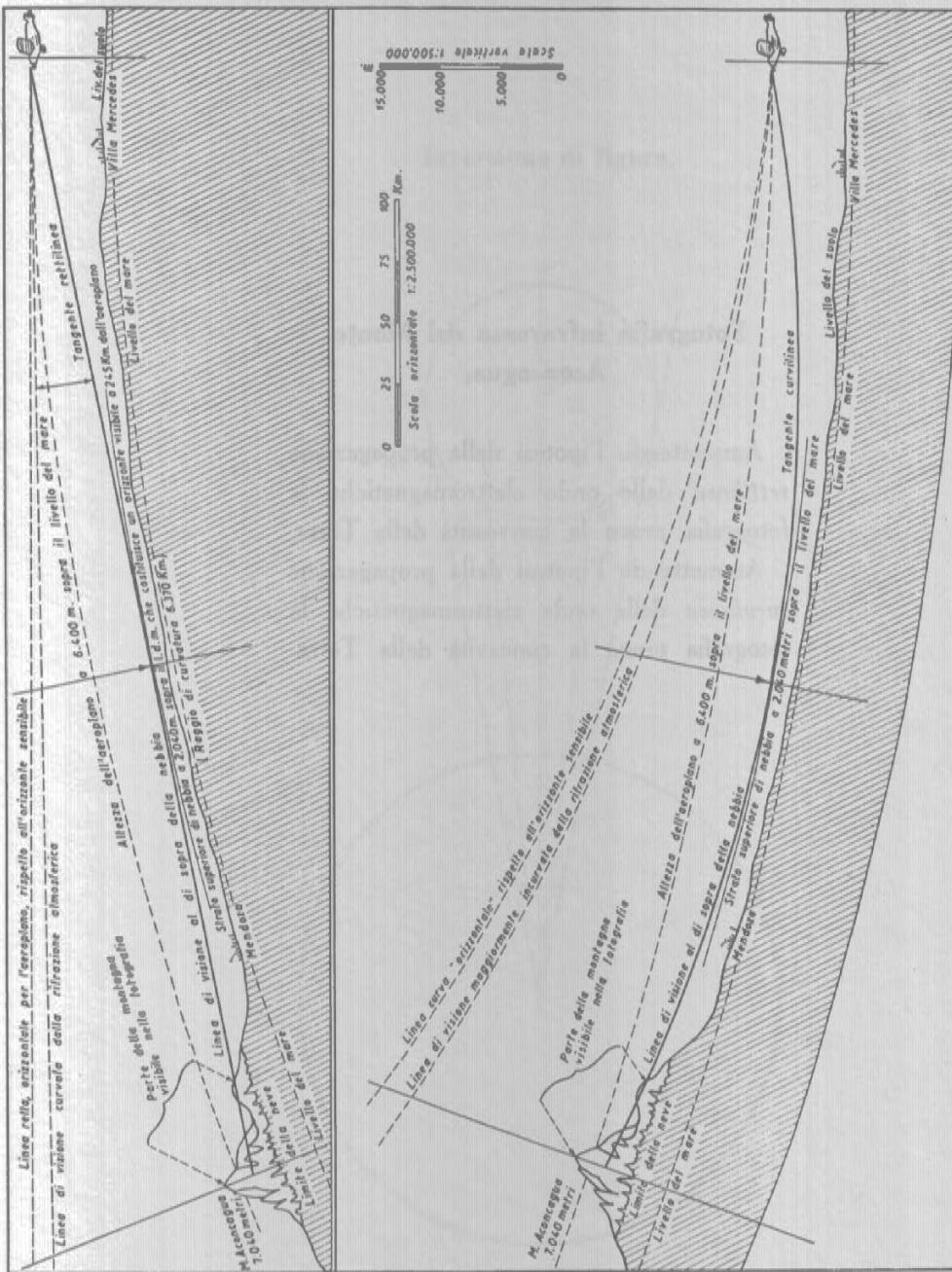
Perchè la Terra concava appare convessa.



segue TAV. V

Come apparirebbe la Terra concava vista dalla Luna o dal Sole.





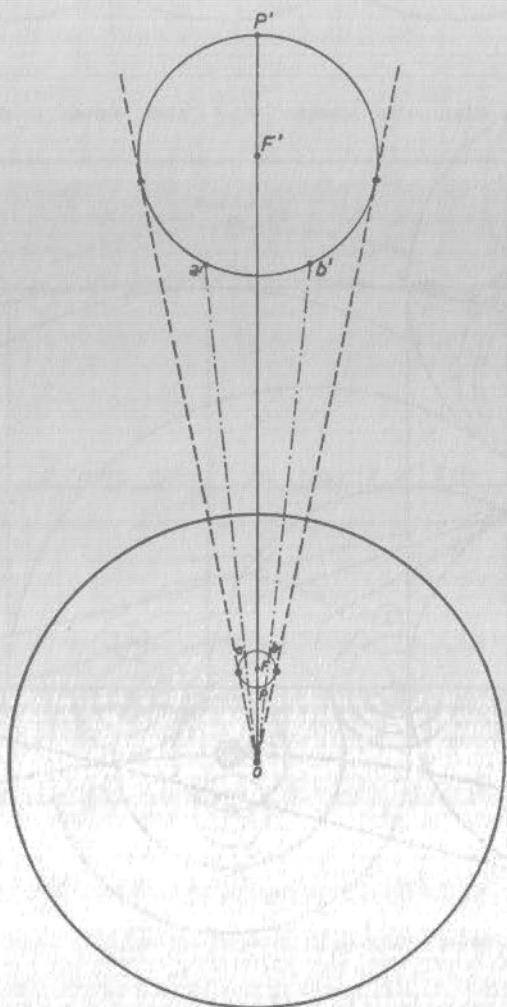
Una fotografia infrarossa del Monte Aconcagua fu scattata nel 1931 da un aeroplano ad una distanza di 460 chilometri: le due interpretazioni, convessa (fig. sup) e concava (fig. inf.).

Fotografia infrarossa del Monte Aconcagua.

Ammettendo l'ipotesi della propagazione *rettilinea* delle onde elettromagnetiche la fotografia *prova* la convessità della Terra.

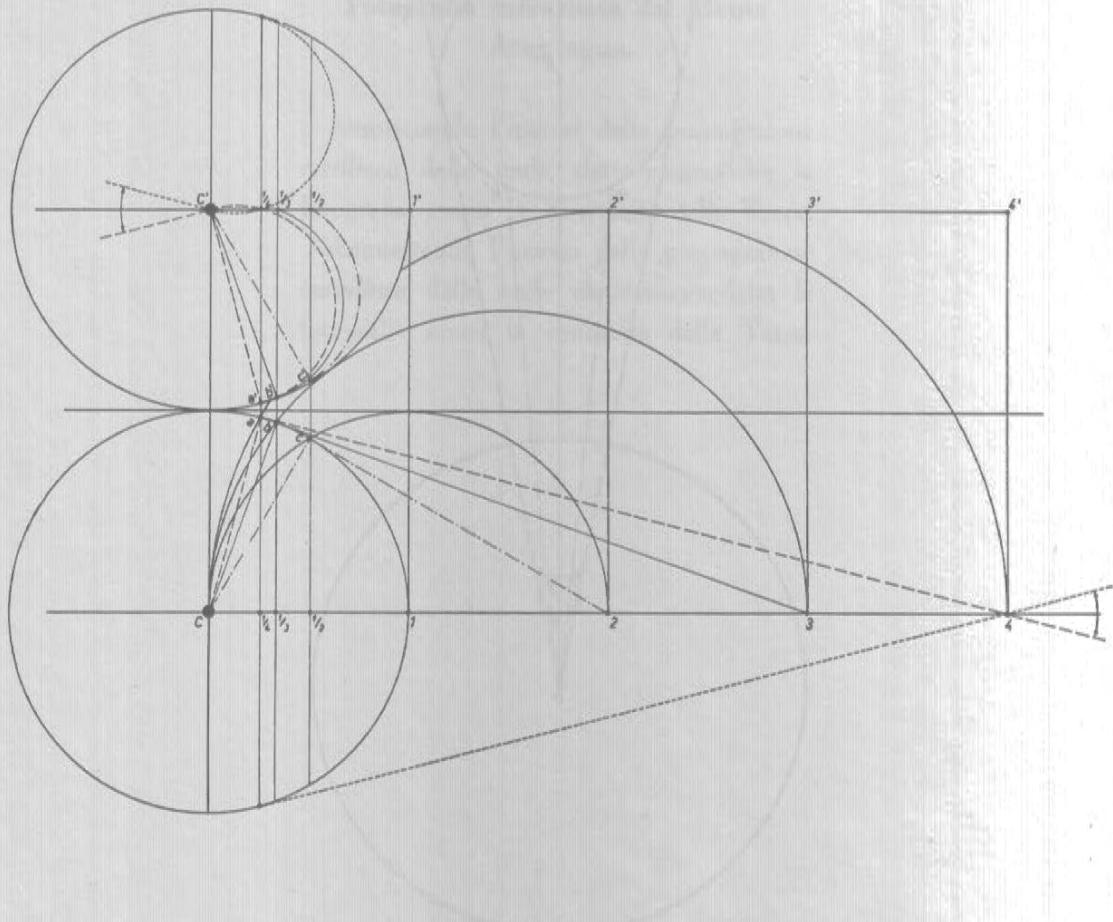
Ammettendo l'ipotesi della propagazione *curvilinea* delle onde elettromagnetiche la fotografia *prova* la concavità della Terra.

Inversione di figure.



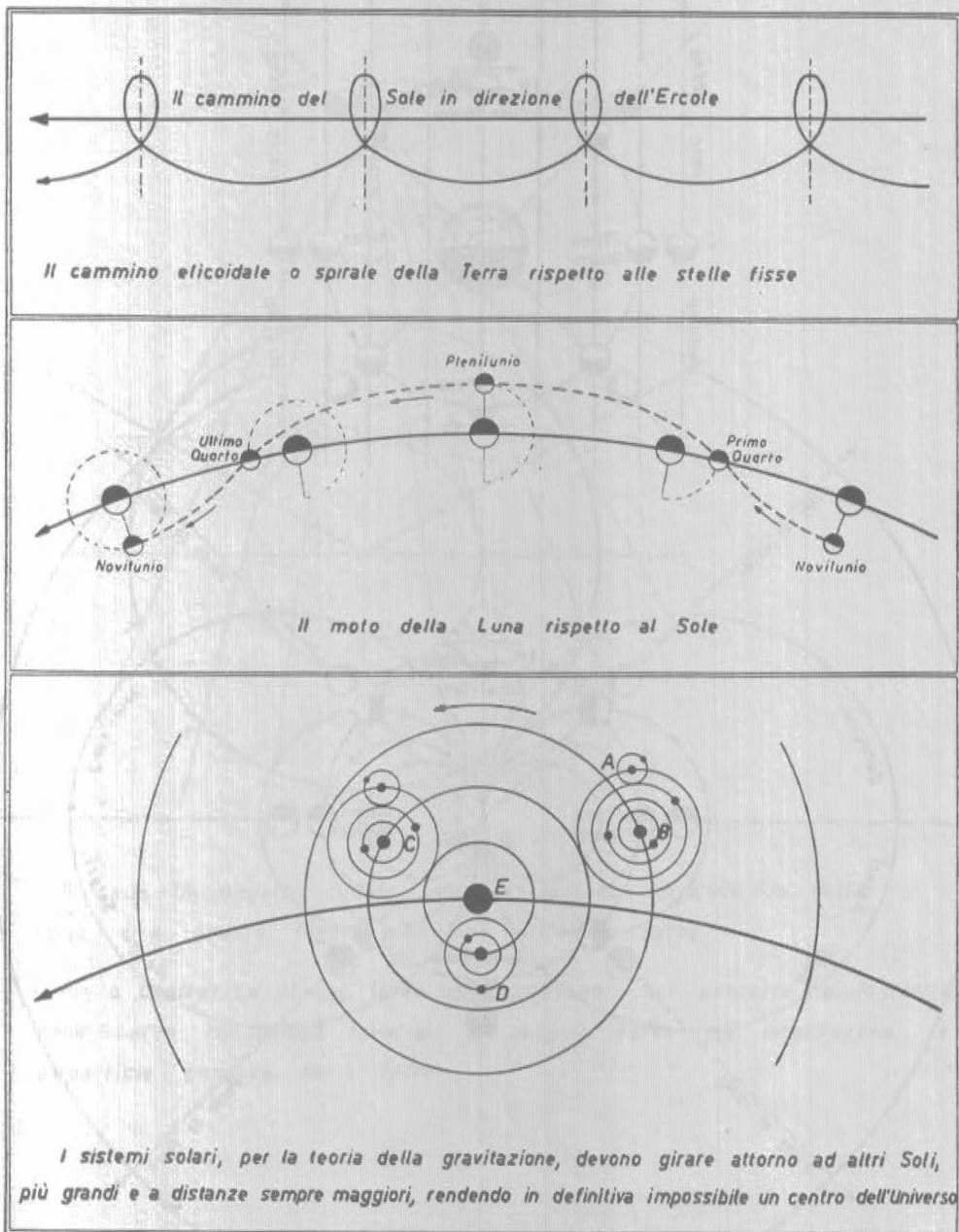
segue TAV. VII

Il problema delle parallassi.

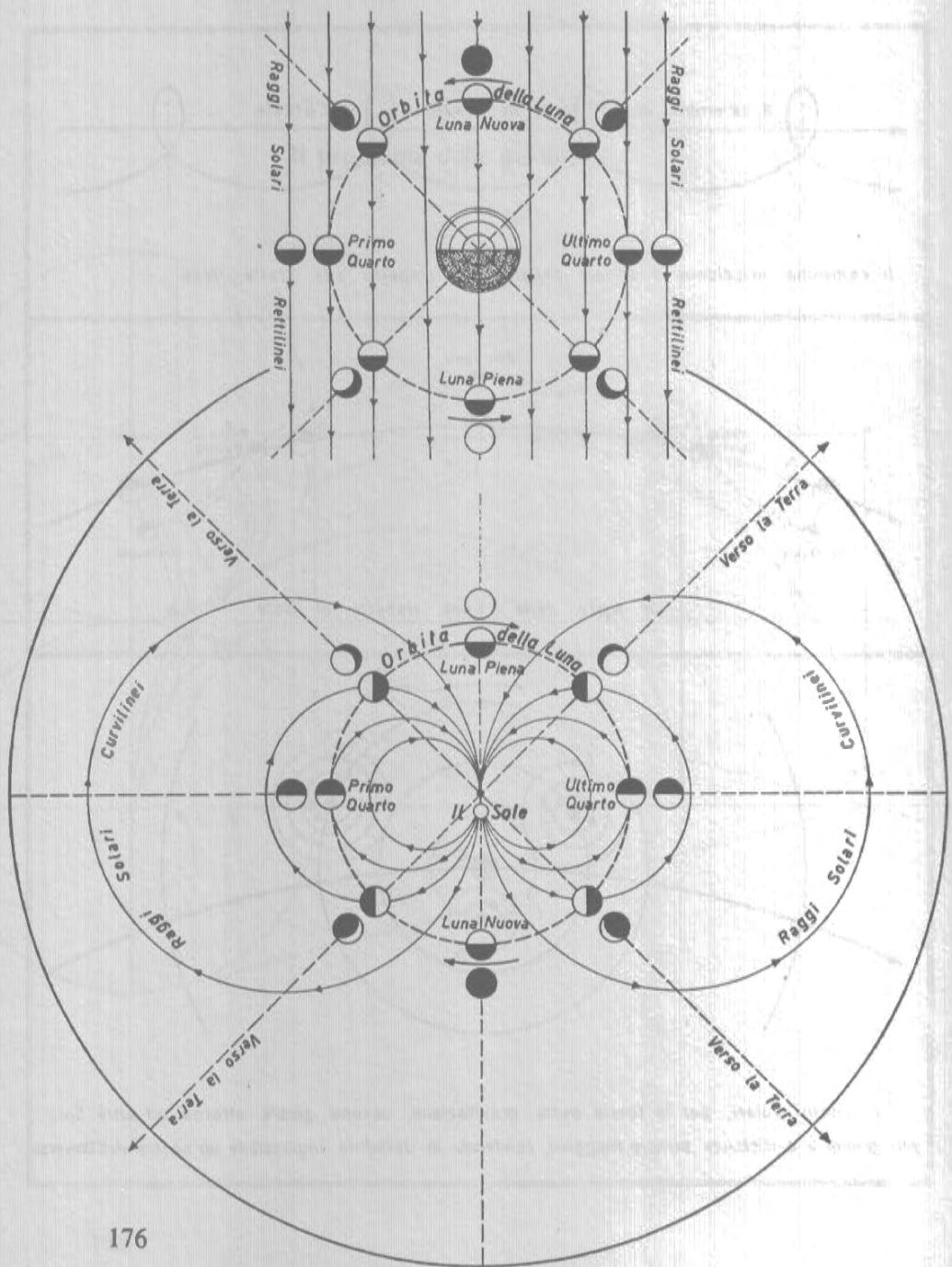


La legge di Newton applicata allo spazio esosferico euclideo.

I moti degli astri nel sistema classico



Le fasi lunari nei due Sistemi.



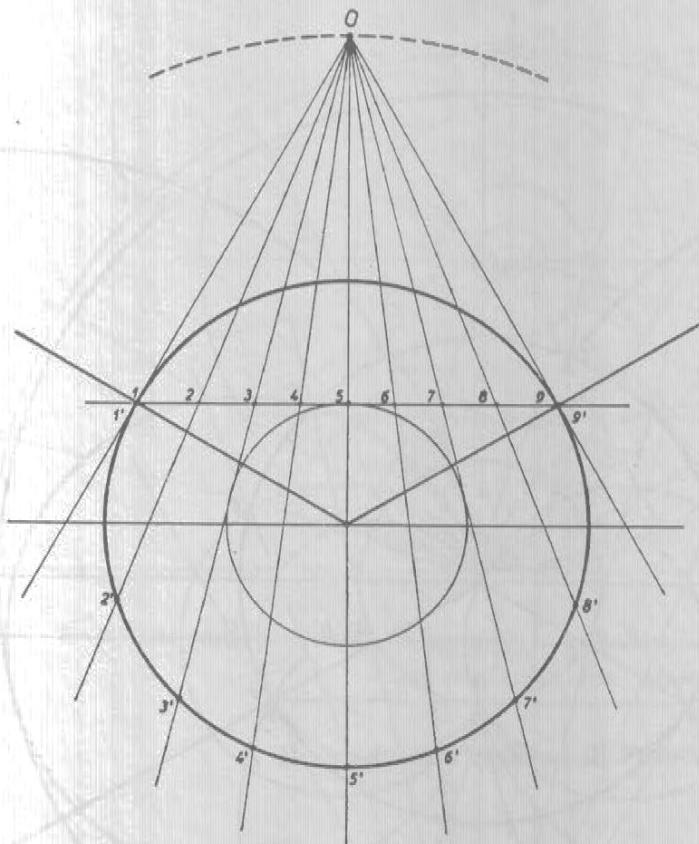
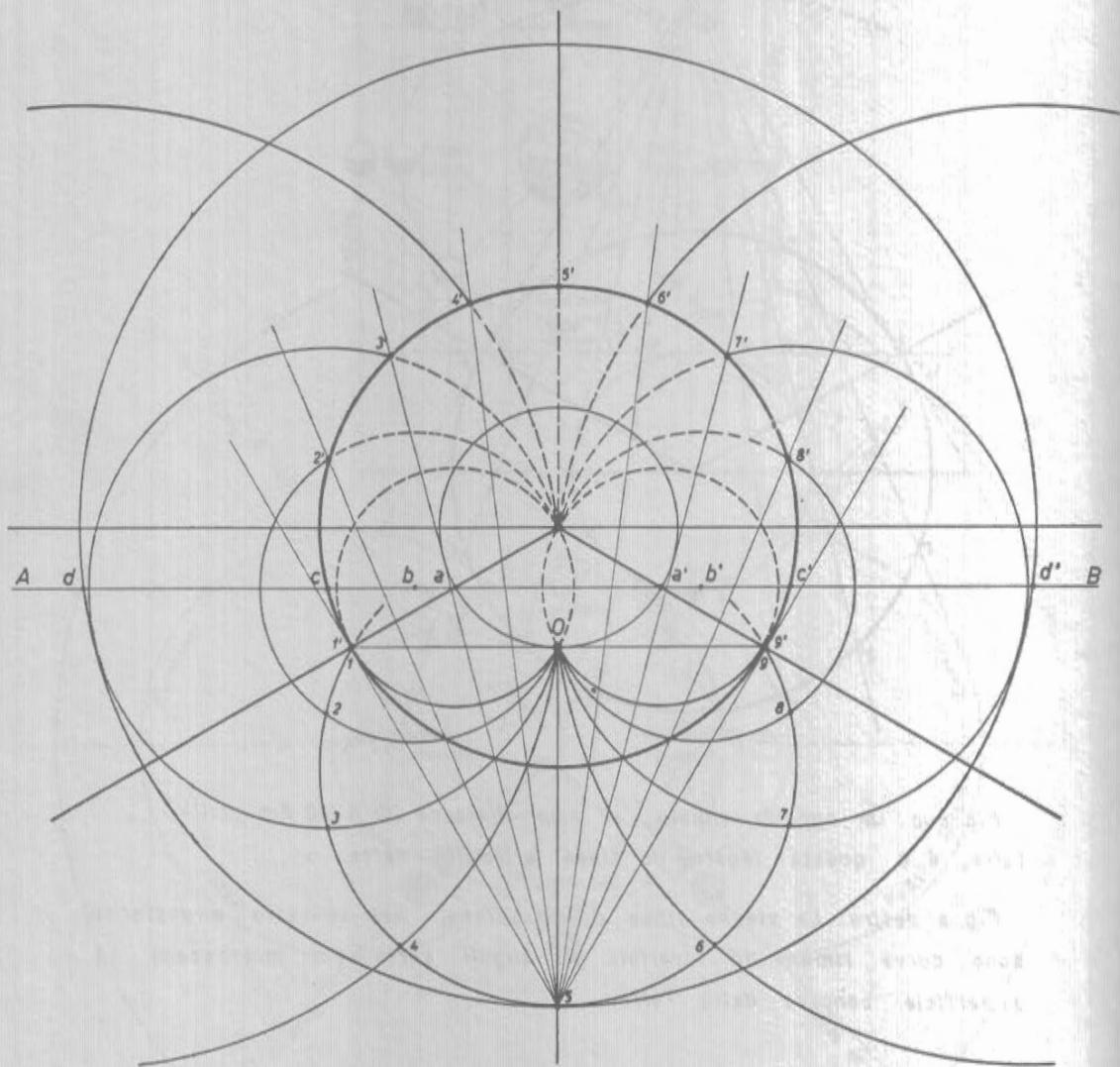


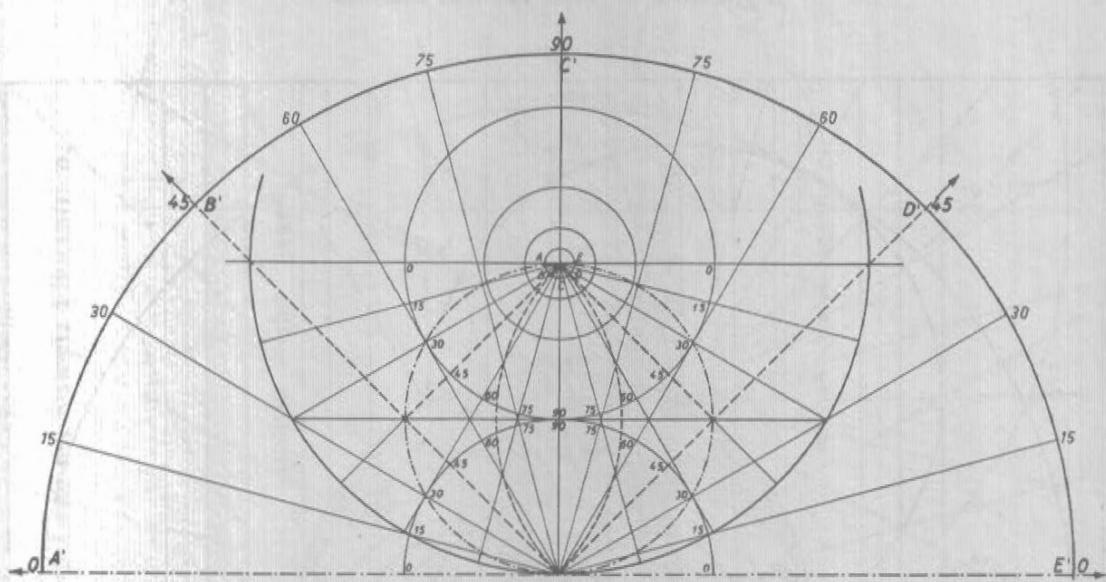
Fig. sup.: Un oggetto, situato ad una distanza di 6.400 Km. dalla terra, è a questa legato da linee attrattive rette.

Fig. a destra: Le stesse linee di attrazione, nel concetto endosferico, sono curve, rimanendo invariati gli angoli sotto cui intersecano la superficie concava della Terra.

Le linee attrattive nei due Sistemi.

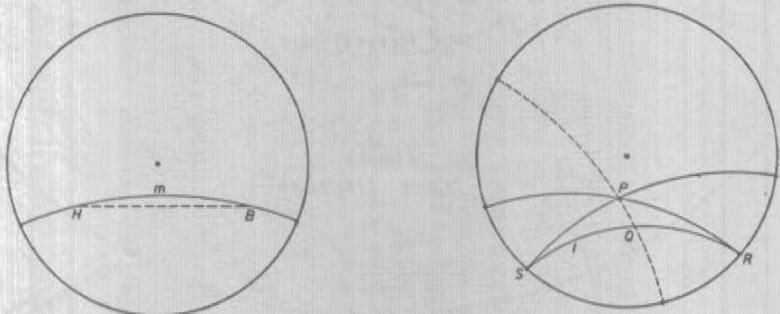


La volta del cielo nei due Sistemi.

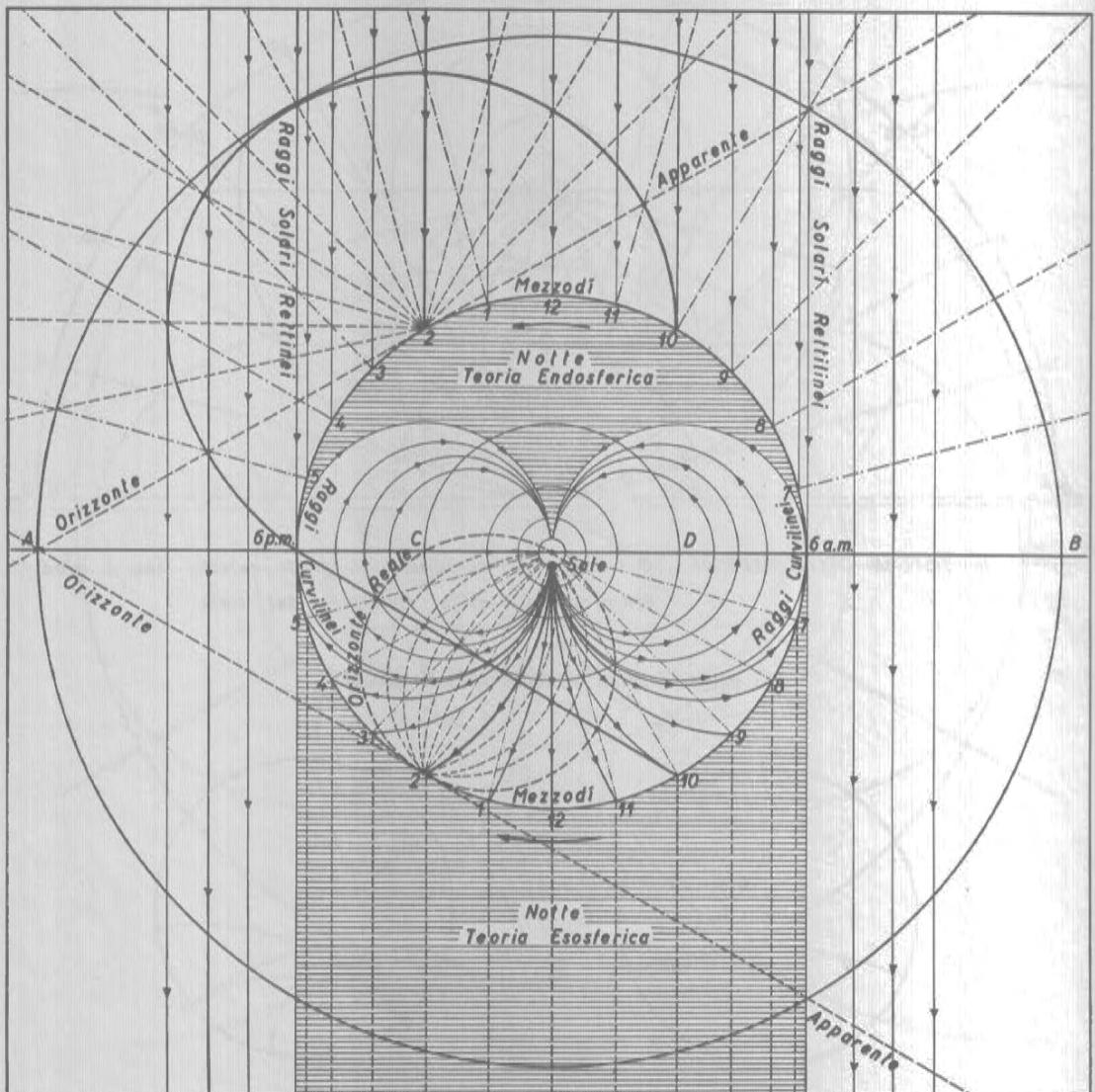


IL SISTEMA DELL'ORIZZONTE — Il metodo per coordinare i gradi celesti con i gradi dell'arco della volta apparente del cielo.

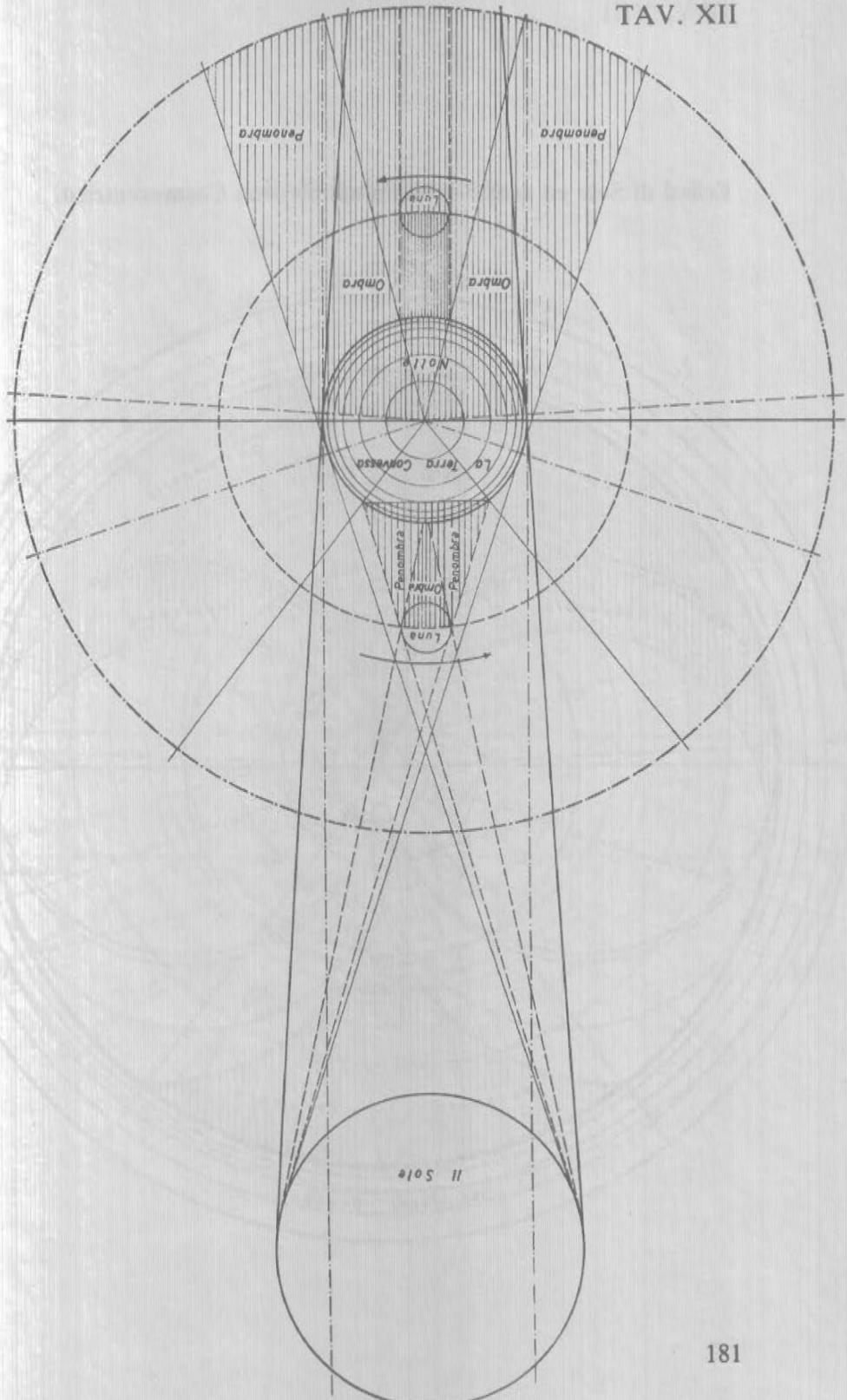
Il mondo non euclideo di Poincaré.



Il giorno e la notte nei due Sistemi.



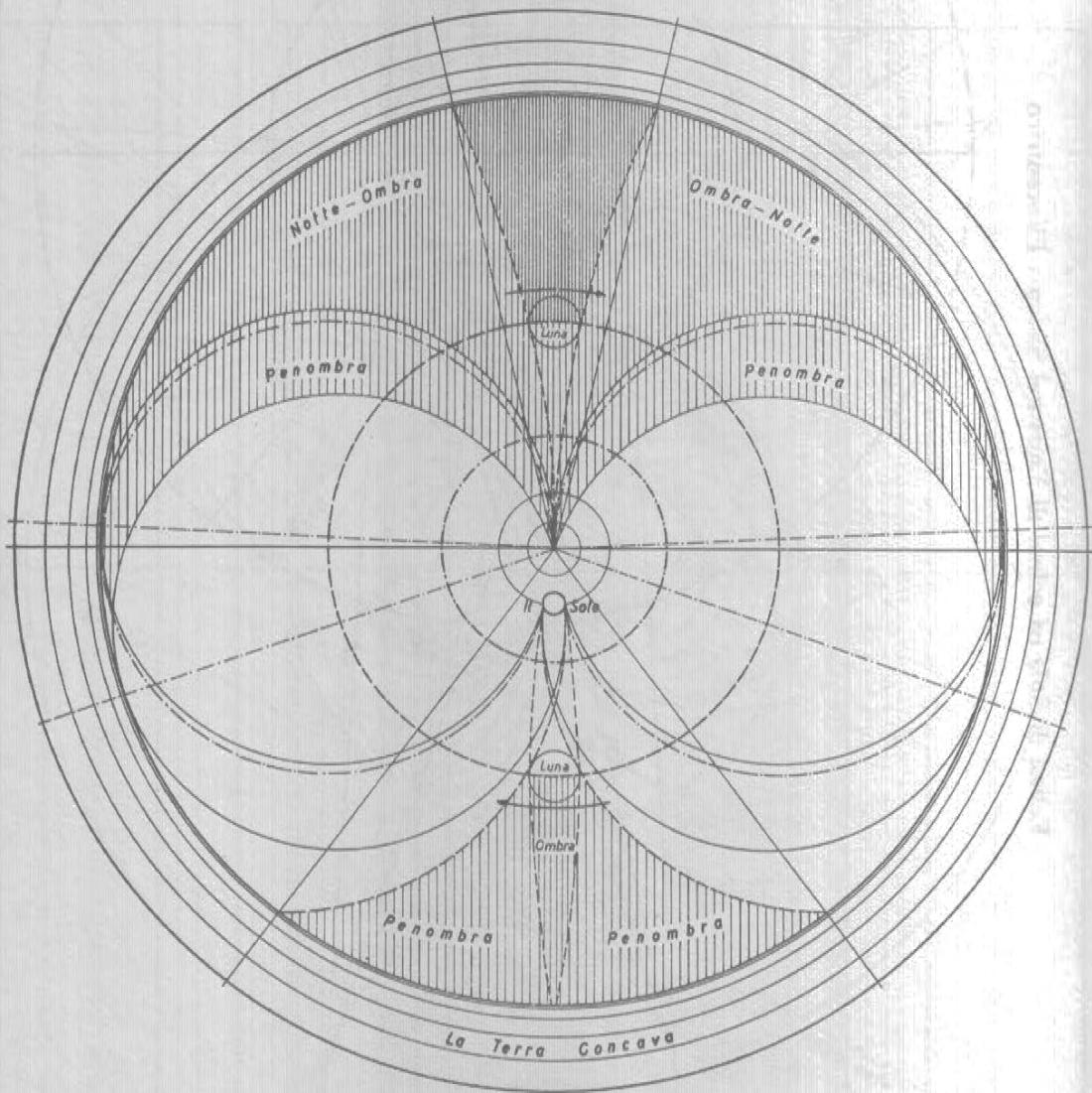
TAV. XII



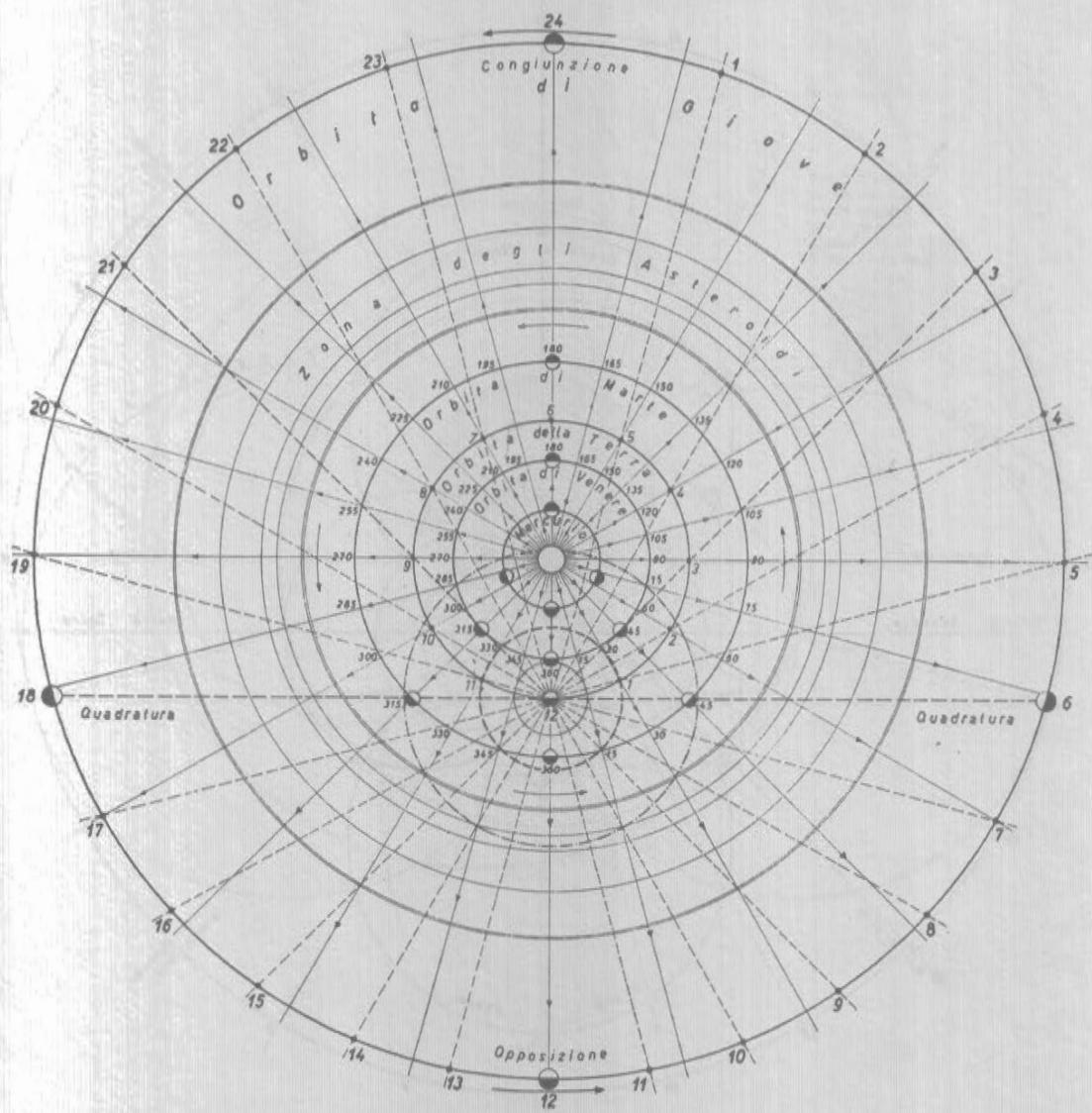
Eclissi di Sole ed eclissi di Luna nel Sistema Eliocentrico.

TAV. XIII

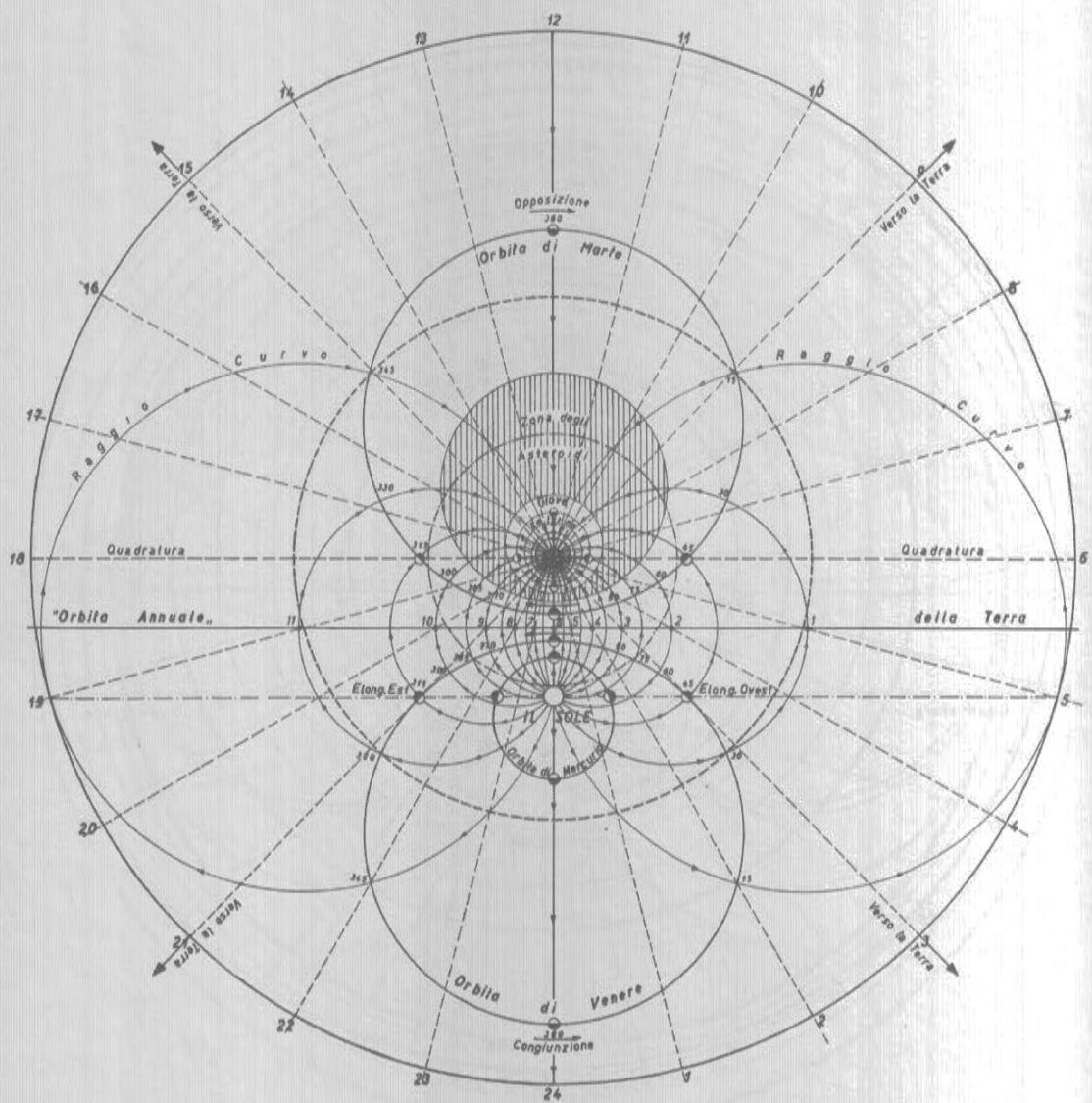
Eclissi di Sole ed eclissi di Luna nel Sistema Cosmocentrico.

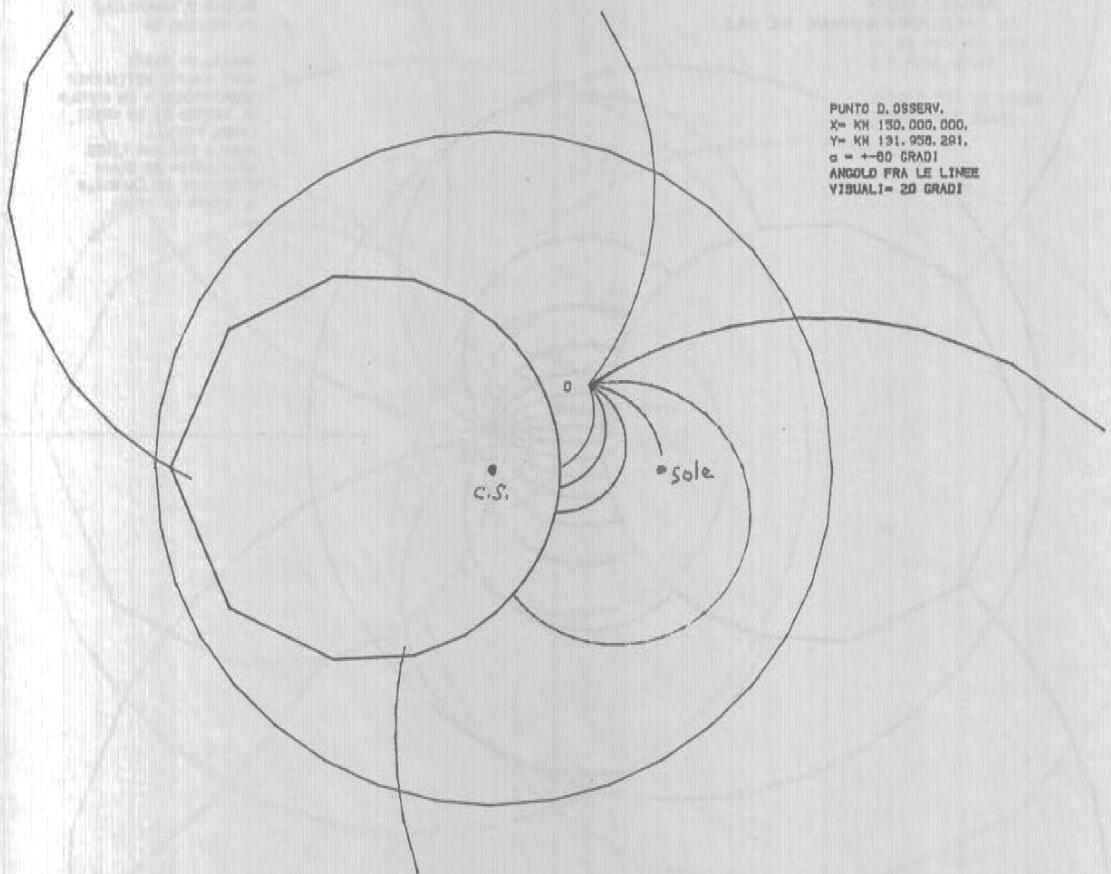


Il Sistema Eliocentrico.

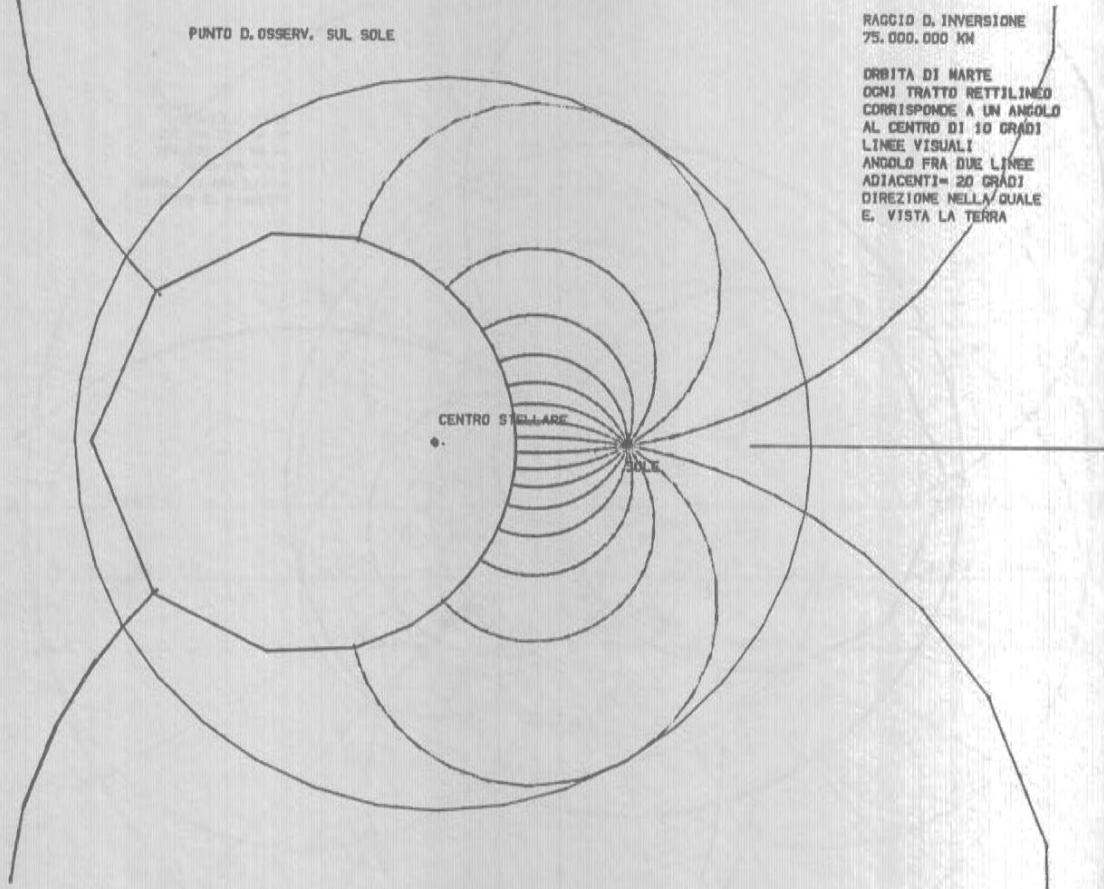


Il Sistema Cosmocentrico.

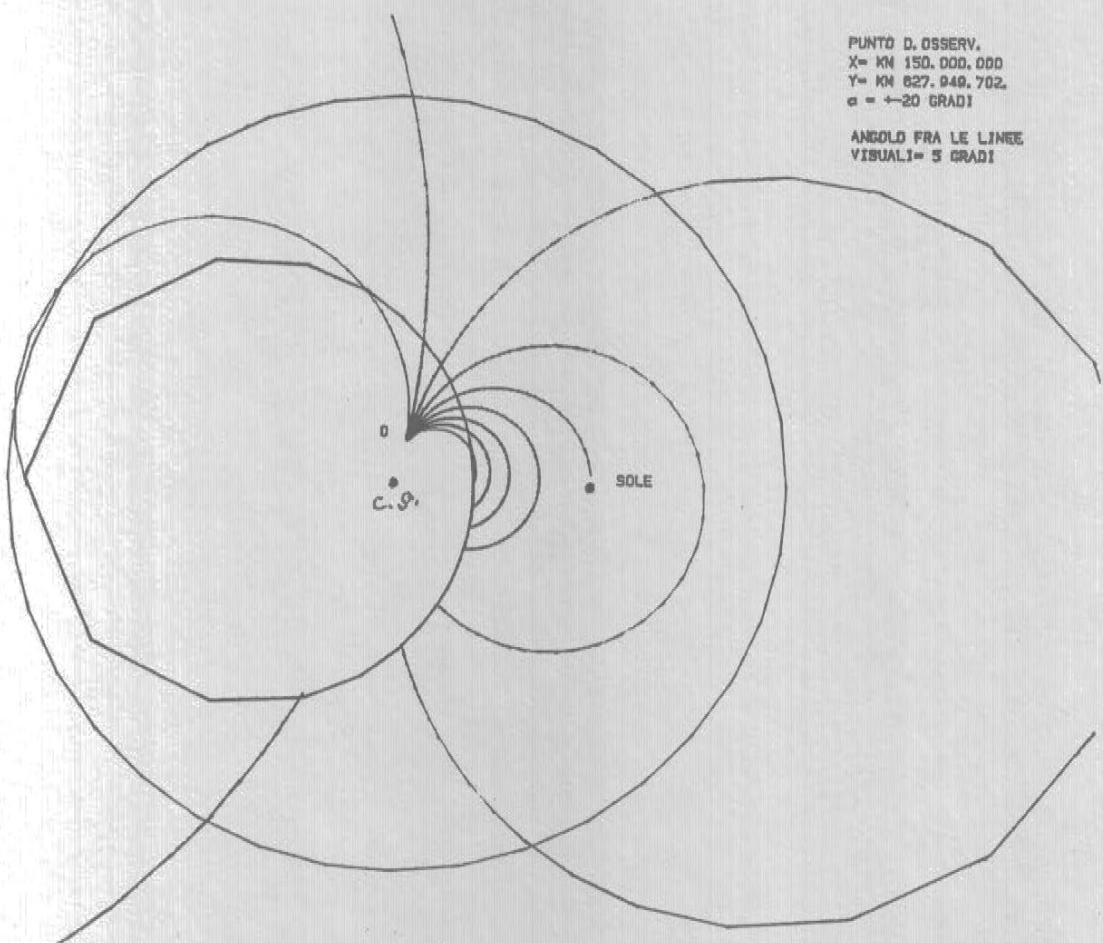




TAV. XVII



TAV. XVIII



L. 33.000 (...)