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GENERAL ETHERO-DYNAMICS

Abstract of individual chapters

Chapter 1: The current methodological crisis of physical science

The contemporary theoretical physical science finds itself in a deep crisis expressing itself in an ever growing incapability of theoretical models to provide help for practical tasks and in an ever growing waste of money for research purposes. This incapability is caused by the dominance of an idealistic ideology giving rise to the acceptance of assumptions *ad libitum*, to the neglect of experimental facts and to the substitution of the ontology of physical phenomena by space-time deformations. Thus, the materialistic philosophy is outlawed and instead certain mathematical laws are introduced and taken as absolute.

The idealistic ideology is counterrevolutionary. Real physical revolutions are based, instead, on the generalization of experimental data, whose general features are worked out giving way to consider the next lower hierarchical level of material organisation. The analysis of this lower hierarchical level will allow find out the construction material and explore the formation principles for the beforehand analyzed higher level. By the way, accumulated contradictions may be solved and new ways of investigation may be opened.

In order to find the way out from the crisis, a return to materialistic principles is needed. The aim of natural science as an explanatory tool of nature is to understand the cause-effect relationships between material objects and phenomena. For this understanding a dynamical approach has to be chosen which presupposes the existence of structures underlying any material object and of internal mechanisms underlying any phenomenon. It must be possible, in principle, to elucidate the internal mechanisms of any of these interactions and phenomena.

In our days it has become evident that it is necessary to pass over to the next lower level of material organization beyond “elementary particles”. This step must be accompanied by the recognition of the existence in nature of a medium, called ether, which fills the space of the universe everywhere serving as the construction material for every kind of matter and mediating by its movement every sort of interactions.

Chapter 2: A short history of the ether

The concept of ether accompanied the development of natural science from its beginning up to our days. World models proposed by different authors and different physical theories prevailing until the beginning of the twentieth century correctly involved the existence of a natural universal medium - the ether, appearing as the construction principle of matter and as the bearer of energy of physical interactive fields.

The unsuccessfulness of a great number of theories, models and hypotheses involving the concept of ether was due to an incorrect methodological approach of the authors to the problem of ether. Corresponding to this approach, the properties of ether have not been deduced by means of a generalization of actual observations, but, instead, by means of postulations and idealizations, which necessarily gave rise to contradictions. This, however, can be explained, in the first instance, by the fact, that data concerning the dynamics of gases or the existence of elementary particles were scarce or lacking at all. These data came up only with the rise of the twentieth century, when in fact every investigation belonging to the theory of ether had come to halt.

The wide acceptance by the scientific community of a strictly phenomenological approach in physics, which was partially due on account of the Relativity and Quantum Theory, lead to deny the concept of ether and, as a consequence, to ignore the material foundations of physical phenomena and to disregard the internal movements of matter. The physical phenomena were, from now on, explained as a result of space-time deformations. In addition, special properties of electromagnetic interactions, such as the quantization of electromagnetic energy and the speed of light, were artificially and unduly generalized for plainly all kind of physical interactions including those of nuclear and gravitational type. This approach curtailed mans possibilities to get insight into nature.

Oddly, contemporary physical theory feels itself forced to introduce the concept of a secular medium under the name of “physical vacuum” or “field - a special kind of matter” etc., thus avoiding the discredited name “ether”, but demonstrating, by the way, the lack of consequence inhering in its philosophical foundation.

The conformance of the experimental data to the numerical results received by use of the equations of Relativity and Quantum Theory has not to mean that these theories are correct, because similar numerical results can be obtained on completely different grounds, namely by use of equations from aeromechanics, which come out if it is supposed that an universal ether exists which is endowed with properties of an ordinary real gas.

Experiments conducted to detect an “ether wind”, whose results were negative and, thus, gave reason to assert the absence of an ether in nature, were affected by either methodological or instrumental pitfalls. The results thus obtained are unable to unequivocally assert the absence of natural ether. On the contrary, there are straightforward experimental data showing the existence of an “ether wind” in the periterrestrial space. These data have been obtained by Morley (1901-1905), by Miller (1921-1925) and by Michelson (1929). The results of their investigations witness not only the fact of the existence of a natural ether but also about its gaseous kind of structure. In our times new successful experiments for the measurement of an ether wind have been carried out, using highly sensitive devices of first order, which allow follow up these investigations on a qualitatively higher level.

It is indispensable to systematically investigate on the ether wind in the periterrestrial space not only for general theoretical reasons but also for practical goals, because any cosmic influence onto the earth proceeds through its ethereal envelope. Taking into account that all processes in general exhibit inertial properties, it will be helpful to investigate in detail the whole spectrum of ethereal properties in the periterrestrial space - its density, pressure, viscosity, temperature, as well as its velocity and direction of flow - enabling, together with other known methods, to create an effective prognostic network

for many terrestrial occurrences, first of all those of cosmic origin. This allows minimizing any negative consequences of these influences, including natural and technological catastrophes.

Chapter 3: The methodological basis of ethero-dynamics

The existence of internal mechanisms of action implies causal relations ruling on every natural level. Recognizing the principle of causality means that anyone phenomenon whatsoever must be caused by some elementary interaction. These elementary interactions can proceed only by direct contact within a common point of space, excluding, by the way, the possibility of an “action at distance” , i.e. interactions through the void, and asserting the principle of an “action at near” on every level of material organization.

Every object and every phenomenon may exhibit an infinite number of aspects and qualities. This is why specific descriptions (models, mathematical descriptions, graphics, sentences) are necessarily approximate. This has to mean that our physical models and mathematical descriptions need be implemented continually. Therefore, actually held fundamental physical dependencies are only provisional descriptions of the laws of nature and have to be revised continually and this concern, of course, must be the primary and most important task of theoretical physicists.

Every mathematical description (be it logical, functional or quantitative) has to be preceded by a qualitative description, i.e. by the construction of a model for specific objects or phenomena. It is important, in order to construct sound models, to make use of the principle of analogy comparing the properties of unknown objects and phenomena with known objects and phenomena and, at the same time, giving reason why this or another analogy should be applied in specific cases.

Before a general physical theory is constructed, it is of fundamental importance to determine the general physical invariants - i.e. those categories which do not change their properties under arbitrary transformations and interactions of physical bodies. These general invariants must not be postulated but be deduced from a scrutinized analysis of all known physical interactions und phenomena. The criterion of choice for general physical invariants is their universal aspect: they must be present in all material formations and appearances of nature whatsoever. Categories which do not satisfy the principle of universality cannot serve as general physical invariants. Thus, categories such as the 4-dimensional interval or the speed of light, which have been claimed to be generally invariant by Einstein, cannot duly be so. Obviously, it is even less justified to misuse electromagnetic concepts (the speed of light) for gravitational phenomena, e.g. in the Theory of General Relativity (the “theory of gravitation”), although gravitational phenomena have nothing to do with electromagnetism.

The generalized analysis which I have conducted before the construction of my theory showed that there are only four categories which are invariant under all circumstances. These are matter, space and time, and in addition, as a summary of them all, motion. These are the primary concepts, to which all other physically relevant appearances are related. The properties of these physical invariants are, as they should be (1) constitutive

for any structure and appearance (2) primordial (3) conserved under arbitrary transformations (4) infinitely separable (5) additive, linear and unlimited. This implies especially: (1) the real physical space is of Euclidian type (2) time is even, with only one direction (3) matter, space, time and motion are eternal and imperishable (4) the universe is conserved in one and the same mean state with no begin and no end. The cosmos in its totality is stationary and dynamic. It is constituted by a continuity of processes which are, without exception, tied to the change of matter in space. These processes are therefore of mechanical type.

It follows from the properties of the mentioned general physical invariants that no preferred frame of whatever type for matter, space, time and motion exists and that, therefore, all macro- and microcosmic levels of material organization are ruled by the same physical laws. There are no special laws for the micro-cosmos. This allows, when models for the structure of material micro-objects are worked out, to make broad use of the analogy to the macro-cosmos.

The structural organization of matter extends indefinitely down and up the hierarchical levels. The total number of levels is infinite, the total quantity of matter, space and time and, thus, of motion is unlimited in the universe. Each specific process, however, involves only a limited amount of matter, of space, of time and of motion. The last aspect, points especially to the fact that the propagation of matter and interactive fields in space and time must be limited.

All methodological sentences of the ethero-dynamic are fully in line with the theses of dialectical materialism.

Chapter 4: The structure of the ether

Consideration of the common features of the macro- and micro-cosmos leads to the conclusion that the universal space is filled with a material medium exhibiting the properties of a real, i.e. a viscous and compressible, gaz. This medium should be named, according to traditional terminology, "ether". The individual solitary element of this medium should be named, as Demokrit proposed, "amer". All types of matter, starting from elementary particles and ending with stars and galaxies, are basically constituted by the ether as their structural material. Physical fields of force emerge from different kinds of ethereal movements.

In order to determine the numerical values of the ethereal parameters, it suffices to apply the mathematical corpus of classical aeromechanics, provided some basic equivalences are introduced. If the dielectricity of the vacuum (ϵ_0) is held equivalent to the density of the ether (ρ_e) and if the strength of the electric field (E) is assumed proportional to the angular velocity v_k of the ether, then the equation for the energy content w of the electric field can be described ethero-dynamically as follows:

$$W = \int (\rho_e v_k^2) / 2 \, dV = \int (\epsilon_0 E^2) / 2 \, dV \quad \text{J.m}^{-3}$$

$$\text{Where } \epsilon_0 = 8.85 \cdot 10^{-12} \text{ } \Phi \cdot \text{m}^{-1} = \rho_e = 8.85 \cdot 10^{-12} \text{ kg.m}^{-3}$$

This founding equivalence of equations can be used, with a few further assumptions, to determine the numerical values of some basic ethereal parameters in the periterrestrial space, namely its density, pressure, specific energy, temperature, velocity, viscosity, thermal conductance and capacity as well as the basic properties of the elementary amer, its mass, size, quantity per volume as well as its median free way and median speed

The analysis of the different types of movement of the ether shows that the individual amer is subject to only one type of movement: the forward motion in space. An elementary volume of ether, on the other hand, is subject to three types of motion: Diffusion, forward flow and angular flow. The diffusion may transmit density, momentum and energy. The forward flow may be laminar or a longitudinal wave. The rotational flow may be open (hose type) or closed (torus type). In summary, there are seven types of movements. Each of them can be described by known equations of aeromechanics.

Chapter 5: Composition of gaseous vortices and their interaction with the medium.

Every material compound is basically formed by condensed vortices of the gaseous ether. The rotational movement, therefore, plays a crucial role in the formation of matter. The formation of vortices and their properties have been studied by many different investigators, who have obtained many important results. In spite of this, numerous problems concerning the theory of the vortical movement - its formation and diffusion, the energy and mutual interactions of vortices, including the theory of the boarding layer - have not received so far enough attention.

A rotational movement may appear if two gaseous streams meet each other. Stable vortices may form by themselves because their formation is accompanied by the transformation of potential energy, i.e. the pressure from the outside gas, into kinetic energy of the rotating vortex. Furthermore, conservation of momentum has to be taken into account. Thus, the stronger the vortical body is condensed, the more the energy of the environmental medium becomes enrolled. The formation of a gaseous vortex appears as a natural process in which pressure energy is transformed into rotational kinetic energy of the same gas.

Locally condensed gas can maintain itself only within a closed vortex structure of toroidal type. Gas in the interior area of the torus exhibits a lower pressure, whereas its borders are strongly condensed. The toroidal vortex is enveloped by a border layer, in which the temperature and viscosity of the gas are lower than in the outside medium. This assures the stability of the toroidal structure and its enduring existence.

A toroidal vortex expresses by itself a screw-type movement consisting of both a toroidal and annular velocity component around its central axis. The annular component appears as a consequence of the difference of the section area crossed by the flow in the interior and exterior region of the donut. Furthermore, the velocity of the toroidal component of motion decreases from inside to outside, whereas the velocity of the annular component of motion increases. This follows from the conservation of momentum. The screw-type toroidal motion entails higher stability.

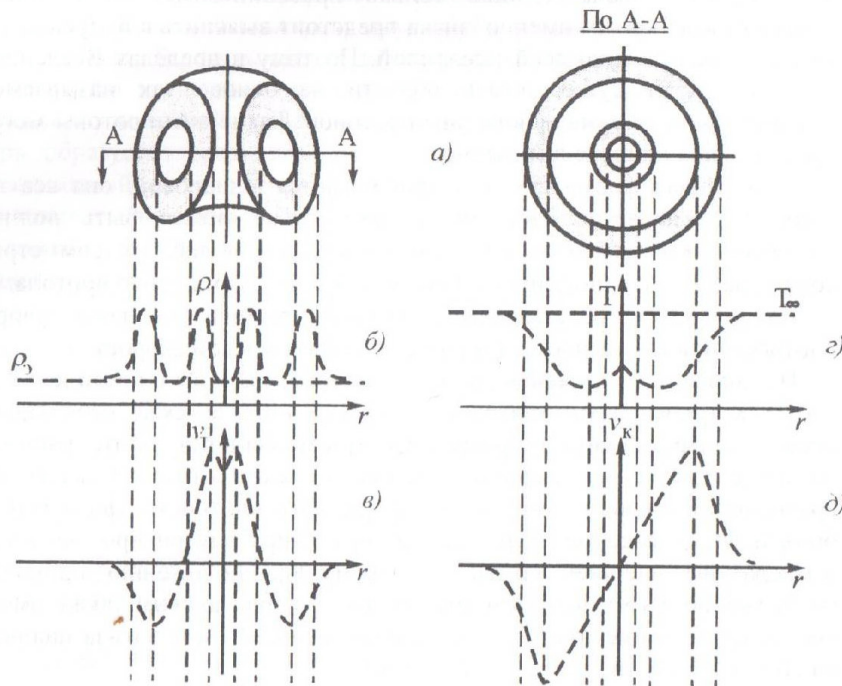


Рис. 6.1. Структура протона: а) поперечный разрез; б) эюра плотности; в) эюра температур; г) эюра скорости тангенциального потока; д) эюра скорости кольцевого потока

Fig. 6.1. Structure of the proton: а) cross sections б) distribution of the (ether)density в) distribution of the temperature г) distribution of the speed of the tangential flow д) distribution of the speed of the annular flow.

The environment of the screw-type toroidal vortex is subject to similar kinds of motion: its toroidal component is described by the law of Biot-Savart, its annular component, on the other hand, is described by the law of Ostrogradski-Gauss. In addition, the environment is subject to a gradient of temperature, causing a thermo-diffusive type of motion which can be described by the equation of thermal conductance. The thermal gradient causes the surrounding gas to be shifted to the border of the vortex and finally to be taken up by the vortical body. As a consequence, the size of the body increases and its angular velocity decreases leading to a loss of energy and stability of the vortex. The energy dissipates out causing the vortex to diffuse and to become finally decomposed.

All kind of interactions between gaseous vortices distributed in a common gaseous medium proceed according to the principle of the “action at near”. Each vortical structure creates by its dynamics corresponding movements of the environmental medium, which for their part create influences onto other vortical structures. There are four types of movements of the environmental medium influencing the vortical body: (1) frontal motion along the direction of the flow (2) lateral motion along the direction of the flow (3) lateral motion perpendicular to the direction of the flow and (4) temperature flow. Each of them is accompanied by a gradient of the environmental gaseous pressure.

Comparing the properties of a gaseous screw-type toroidal vortex with those of the proton suggests that the proton is indeed constituted by such a kind of vortical structure. The neutron, on the other hand, exhibits the same structure with the difference that it is enveloped by an additional border layer of about 10^{-16} m size, which masks the toroidal velocity to some extent and extinguishes the annular velocity completely entailing a weaker magnetic moment and the absence of charge. The forward velocity of the ether at the outer surface of the proton is much higher than the velocity of light reaching a value of about $1.15 \cdot 10^{21}$ m/sec. The velocity at its interior border is even 400 times higher.

The magnetic field of the proton can be interpreted as resulting from the forward ethereal speed of the toroidal component of flow which is being communicated to the environment. The electric field, on the other hand, can be interpreted as resulting from the annular speed component, which extends to the environment as well. The polarity of the electric charge and field depends on the orientation of the annular speed component with respect to the toroidal speed component, i.e. it depends on the sign of the screw-type movement.

The magnetic moment of the proton is given as $\mu_p = k' \cdot \rho_e \cdot c \cdot v_T \cdot V_p$, where k' is a dimensionless coefficient taking into account the geometry of the proton, ρ_e is the ethereal density of free space, c is the speed of light, v_T is the toroidal velocity component and V_p is the volume of the proton torus. It is known that $\mu_p = 1.41 \cdot 10^{-26}$ J.Tl⁻¹. This implies that $v_T = 3.76 \cdot 10^{20}$ m/sec, as an approximation. The electric charge is given by the annular circulation on the protons surface of the condensed ether, i.e.: $q = \rho_e \cdot v_A \cdot S_p$, with v_A as the annular velocity component and S_p as the surface of the proton. If $q = 1.6 \cdot 10^{-19}$ C, then v_A must have a value of $1.15 \cdot 10^{21}$ m/sec.

The strong nuclear interaction may be interpreted as resulting from the reduced ethereal pressure in the border layer between neighboring nucleons. Thus, the pressure from outside is much higher - the difference amounts to $2 \cdot 10^{32}$ Pa, which is much more than any other pressure. However it is still small compared to the ethereal pressure of free space which amounts to $1.3 \cdot 10^{36}$ Pa.

Prevailing nuclear models describe some nuclear properties by mathematical tools. These descriptions, however, fail to give insight into the nuclear structure and into the mechanism of nuclear attraction. Etherso-dynamic models of the proton, the neutron and their interaction, on the contrary, allow insight into the structure of atomic nuclei and into the physical nature of forces acting within them. The atomic nucleus is composed of nucleons, which are held together by the intervening border layers. The structural unit of higher ordered atomic nuclei is the alpha-particle. These particles are especially stable because they are hold together by one common border layer. The alpha-model is suited to explain many structural and energetic features of complex atomic nuclei, e.g. their spin and the magic number of neutrons. Complex atomic nuclei of the same element may exhibit different isomeric forms of structure.

The weak nuclear interaction may be interpreted as resulting from asynchronic waves which pervade the surface of the nucleon. These waves are transmitted to the surrounding ether and appear as electromagnetic radiation. The decay of complex nuclei may happen because these waves and their radiation disturb the inter-nucleonic border layer.

Chapter 7: Atoms, molecules and matter

The whole spectrum of quantum-mechanical effects and its phenomenology may be interpreted from the standpoint of aeromechanics asserting that the ether conforms to a real viscous and compressible gas. Electronic shells of atoms may be interpreted as associated ethereal vortices in which the direction of the screw-type motion, i.e. the orientation of the annular and toroidal motion to each other, is contrary to the direction created by protons in their immediately adjacent space. The analog of the multilayered electronic shell is given in the realm of aeromechanics by the multilayered Taylor vortex.

The wave function described by Schrödinger's equation (Ψ function) can be interpreted as the density distribution of the ether in the associated vortices, but not as the probability to find the electron in a given spatial region as quantum theory likes to see it; in addition, it must be mentioned that the Ψ function gives but an approximate picture of the real ethereal density distribution within associated vortices. When atomic models are constructed on the basis of the shape of the Ψ function, the following rules should be applied:

- (1) the extremes of the Ψ function correspond to the centers of the associated vortices
- (2) its zero values correspond to the borders between neighboring associated vortices.
- (3) quantum numbers correspond to the arrangement of associated vortices and to their orientation.

Chemical bonds of molecules may be formed either by alliance of associated atomic vortices within one common molecular vortex (covalent bond) or by associated vortices of two atoms closely joining to each other while keeping an anti-parallel orientation of the ethereal surface flows because of a decrease of the ethereal pressure between them (ionic bond). Van der Waals forces - the attraction between molecules - may be explained by the formation of a flow gradient between molecules giving rise to a local decrease of the ethereal pressure.

The formation of covalent bonds is accompanied by the ejection of condensed screw-type ethereal flows which give rise to independent light particles being called "leptons". These leptons build up a "foam", whose stability reaches from seconds on the surface to hours in the depth of the foam. The formation of metallic bonds is accompanied by the ejection of ethereal flows stimulating the creation of free electrons from parts of the associated vortices of first order (i.e. the electronic shells). The free electrons are ejected into the realm of the associated vortices of second order (i.e. the shells of Van der Waals type) where they behave similar to a free molecular gas. Part of the free electrons leaks to the surface of the metallic piece, where they form a pattern called "Fermi surface" consisting of electrons arranged in a chess set order, with the spins of neighboring electrons being oriented in opposite direction. This system is stable and may endure indefinitely.

The so called "aura" may be interpreted as resulting from the formation of associated vortices of third and even higher order extending to macroscopic distances of the surrounding space. Given the analogy to Taylor's multi-layered vortex, the following picture emerges: at the center we find the nuclear vortex of protons (10^{-15} m), then follows the layer of the electronic shell (10^{-10} m), next the layer of Van der Waals vortices extending to 10^{-5} m. Finally, the third and fourth order layer comprises the aura extending between 1 cm and 100 m. As can be seen, the pattern is of fractal type with 5 orders of magnitude in between each of them. The forces (i.e. the ethereal velocities) associated

with the layers is inversely proportional to the square of their extension. Although all matter exhibits an aura, only living matter with metabolism is able to elicit and to perceive specific dynamic patterns, giving rise to telepathy, telekinesis etc.

Chapter 8: The electromagnetic phenomenology

Above, in chapter 6, we have defined the physical content of the electric charge as the *circulation of the condensed ether around the surface of the particle* given as q (C) = $\rho \cdot v_k \cdot S_p$ (g/sec), where ρ is the density ($\text{g}\cdot\text{cm}^{-3}$) and v_k the annular speed of the ether ($\text{cm}\cdot\text{sec}^{-1}$). S_p is the surface of the proton (cm^2). Therefore, q has the dimension of momentum ($\text{cm}\cdot\text{sec}^{-1}$). With $I(\text{A}) = dq/dt$ (g/sec^2), we are able to define the electromagnetic units in terms of the CGS system. This result is of paramount importance, because so far, electromagnetic units had to be defined separately by the CGSA system, which introduced charge as an invariant *sui generis* giving rise to the impression as if the electromagnetic phenomenology were something strange to the rest physics. This prevented its understanding and the understanding of physics as a whole (exemplified by the incompatibility between QT and ART). The following table defines the fundamental electromagnetic units in terms of the CGS and the CGSA system, respectively:

Ladungsmenge (q)	Coulomb (q)	$\text{g}\cdot\text{sec}^{-1}$	A.sec
Stromstärke (I)	Ampere (A)	$\text{g}\cdot\text{sec}^{-2}$	A
Elektrische Verschiebung (D)	Coulomb/cm ²	$\text{cm}^2\cdot\text{g}\cdot\text{sec}^{-1}$	A.sec.cm ⁻²
Spannung = Potentialdiff. (U)	Volt (V)	$\text{cm}^2\cdot\text{sec}^{-1}$	$\text{cm}^2\cdot\text{g}\cdot\text{A}^{-1}\cdot\text{sec}^{-3}$
Widerstand (R)	Ohm (V/A)	$\text{cm}^2\cdot\text{g}^{-1}\cdot\text{sec}$	$\text{cm}^2\cdot\text{g}\cdot\text{A}^{-2}\cdot\text{sec}^{-3}$

The whole spectrum of electromagnetic phenomenology may be interpreted on grounds of the ethero-dynamic. Thus, charge is defined as the annular angular momentum of the ether in protons and electrons, polarity is defined as the orientation of the annular angular momentum, the electric field is defined as the presence of open vortical tubes, in which the ether revolves around the axis of the tube with a forward divergent motional component in the center and an opposite motional component in the periphery. The ether, thus, performs a closed trajectory with a longitudinal and a transverse component of motion. The electric displacement (ϵ_0) can be explained by the density of the disordered ether in free space. The relative electric displacement of the electric field (ϵ) is, consequently, given by the relative density of the ether in the field, i.e. in the tubes. If a charge is accelerated by an electric field, then the differential density between field and charge diminishes depending on v and will become zero with $v = c$. Thus, the potential energy acting on the accelerated charge diminishes according to the formula $E = E_0(1 - v^2/c^2)$. Therefore, no charged particle may be accelerated beyond the speed of light. The magnetic field can be interpreted as the forward motion of the ether within the vortical tubes of the electric field. This forward component reduces the ethereal pressure in perpendicular direction and, thus, gives rise to the magnetic force.

Based on these qualitative models for the electric and the magnetic field, it is possible to derive the classic electromagnetic equations (Maxwell, Faraday, Ampere). In addition, it is

possible to explain phenomena which have so far not been understood. Amongst them the longitudinal propagation of the electric field, the principle of mutual induction of conductors, which differs from Maxwells description and the dependence of the EMF on the magnetic field not only at its inner but also at its outer side. A number of experiments have been carried out to test some predictions made by the ethero-dynamical model of electromagnetism.

Chapter 9: The light

Light is not an electromagnetic wave. The identification of the two on because of their identical speed of propagation is not justified. The difference of the two phenomena becomes evident if, for example, the dumping of light and electromagnetic waves in a semi-conductive medium, such as sea water, is compared: Light is able to pervade this medium by 5-6 orders of magnitude farther than an electro-magnetic wave.

The structure of light may be imagined as consisting of a twin-filed chain of screw-type ethereal vortices, in which one file revolves in a right-handed and the other in a left-handed way. Each vortex is compressed in its central part. Such a structure is able to explain, in a natural way, at a time the corpusculo-ondular dualism, its polarization, spin, constancy of forward speed with respect to the ether in a given space point and other properties. - *but not the results of double slit experiments, as it may seem (Azjukowski skipped their discussion).*

The whole spectrum of optical phenomena may be interpreted from the ethero-dynamical standpoint, amongst them the reflection, refraction, diffraction, interference and aberrance. The essence of these phenomena can be made precise and predictions be made concerning the change of spin, if the photon is reflected from a metallic surface and also concerning the mutual interaction of polarized rays of light.

Hubble's law for the red-shift of the spectrum from distant stars entails no prove for the expansion of the universe. Instead, photons are losing energy because of the viscosity of the ether. The loss of energy is exponential, with a time constant of about 10 billion years. Similarly, the background radiation is not a consequence of a "Big Bang". Instead, the CMB appears as the terminal stage of photons which were emitted from distant stars. At this stage, photons got lost of their original structure and direction of propagation. This circumstance may explain the limit of the visible universe. The universe is unlimited indeed, but from beyond a given limit the photons can't reach the observer.

Chapter 10: Gravitational interactions

The gravitational interaction can be understood as a thermo-diffusional process in the ether, based on the exchange of heat energy between massive matter and the environmental ether. Application of the solution of the equations for thermal conductance allowed defining the laws of gravitational attraction with greater precision and determining the physical meaning of the gravitational constant. In addition, it is shown that the gravitational interaction is of limited reach. This enables to solve, in a natural manner, the paradox of Neumann-Seliger for the supposedly Euclidian space.

The speed of propagation of gravitational excitations corresponds to that of the sound in the ether (implying but a small increase in its pressure), reaching a value of $4.3 \cdot 10^{23}$ m/sec. This is in agreement with Laplace's calculus showing that the propagation of the gravitational interaction must exceed by no less than $5 \cdot 10^7$ times the speed of the propagation of light, in order to keep the solar system in a stable condition.

Any gradient of temperature is accompanied by a gradient of pressure. Therefore, the ether is steadily being shifted to the side of massive matter followed by its intake, thus giving rise to a steady growth of these massive bodies. This growth can be brought about in three ways: (1) through the creation of new particles. The mechanism of this process has so far not been elucidated. (2) through enlargement of existing particles, which seems obvious. (3) through the accumulation of ether within the earth followed by its transformation to terrestrial stuff. - The growth is exponential with a half time of actually 3-4 billion years. The enlargement of the earth caused by the intake of ether leads to a spreading of the continents on its surface and to a displacement of interior magmatic material stimulating the formation of ridges, which span the whole globe over about 60 thousand km.

The appearance of a magnetic field in rotating celestial bodies can be interpreted as resulting from the intake of ether together with the fact of their rotation. Coriolis forces stimulate a vortical movement of the ether (as they do with normal air) within the celestial body giving rise to the appearance of a magnetic field. Calculations of the numerical values for the tension of the magnetic field agree sufficiently with known facts.

Chapter 11: The ether and cosmology

The ethero-dynamical concepts of the essential physical phenomena are able to give also some insight into the evolution of the universe as a whole. The universe is dynamically stationary and exhibits a stable ethereal cyclic movement. The ether is cycling locally within individual spiral galaxies as well as globally between galaxies leading to their composition and decomposition. On this basis a functional classification of galaxies is given which takes into account different transformations of the ethereal movement in the universe. The entropy of the universe is kept on a constant level and the existence of the universe has no limits in time.

The hidden ethereal mass which concentrates in galaxies and in the intergalactic space exceeds by several orders of magnitudes the ethereal mass which is concentrated in the matter of stars and in the space between stars. The ethereal pressure of free space determines essentially the properties of the particles which basically construct the world - the protons - and, by the way, the properties of matter, stars and their constellations on every level.

The ethero-dynamical model for the creation and evolution of the solar system allows explaining in a natural way the basic peculiarities of its construction and its parameters - e.g. the concentration of the mass of the solar system in the sun whilst of its orbital moment in the planets, the coincidence of the orbital plane of the planets with the equator of the sun, the orbital movement and the rotation of the planets and the accompanying bodies around their own axis.

By virtue of its viscosity, the ether offers resistance to the movement of celestial bodies. This resistance is, however, weak leading to a reduction by half of the orbital and galactic angular momentum within about 3 - 30 billion years, depending on the density of the celestial bodies.

The ether wind blowing from around the north to the earth leads to an uneven distribution of the ethereal pressure on the terrestrial surface: In the northern region the ethereal pressure is higher due to the front effect of the ethereal flows, near the equator the pressure is lower, because of the side effect causing a gradient in the velocity of flows, in the southern regions the ethereal flow becomes turbulent because of the spin off effect, which engages the atmosphere during the southern winter in a vertically revolving motion, which is stretched by Coriolis forces. Taking into account the ether wind, it is possible to explain a number of peculiarities of the terrestrial shape: the concentration of the bulk of continental masses in the northern hemisphere, the colder climate in the south with most of the icy land in the antarktis and the appearance of strong winter storms (the "40 day roar") in the respective latitudes.

Outlook

The presented material gives but a basic and initial picture of the ethero-dynamic patterns of matter. There is no doubt that further investigations will unfold these preliminary steps. It is to be expected that special directions of the ethero-dynamical science will appear: the ether-cosmology, the ether-astronomy, the ether-electro-dynamology, the ethero-chemistry, the ethero-biology etc. Because each branch of natural science is in need today to understand its own processes and to become aware of the internal mechanisms of the phenomena and their regulatory rules. This can be achieved only if the rules for the movement of matter - the movement of the ether - are recognized.