LETTERS TO THE EDITOR

Vortex Occurrences

George Egely's editorial in Issue #128 about vortex occurrences that were not explained by existing theories of energy conservation was very thought-provoking. There were lots of examples given from different areas, possibly all with different solutions, or possibly suggesting a basic widespread mistake in understanding energy. The order of magnitude differences between theory and reality is really quite large, requiring out of the box solutions.

One example Egely only touched on in passing was the question of the source of the energy for hurricane generation. *IE* has published many papers by Graneau on the theory of hydrogen bond breaking on the surface of the water, that could lead to the required energy generation, certainly an out of the box solution and one that I believe has a high probability of at least contributing to the outcome. Egely instead highlights the tornado phenomenon, where the exhibited forces far exceed what can be explained using mechanics and heat theory, thus it also begs a different solution. I suggest using a different force vector, that of electricity, as lightning is a constant activity around tornadoes and electric fields could help explain the erratic behavior of the funnel clouds, as they go up and down bouncing off the earth. Think of it as an electrical phenomenon between two plates of a capacitor. As Tesla imagined it, the Earth's atmosphere was a huge capacitor, where the negatively charged ground was the negative plate and the positively charged clouds were the positive plate, and the atmosphere was the dielectric in the capacitor, which measured in the millions of volts of differential between the plates. It is an asymmetric capacitor in the sense that the ground plate is larger than the cloud plate.

T. Townsend Brown discovered in the 1920s that an asymmetrical capacitor, where one plate was bigger than the other plate, would actually move the entire apparatus in the direction of the smaller plate (either up, down or sideways, but always towards the smaller plate). This led to the development of the lifter phenomenon of current times, where over 500 hobbyists worldwide have built these $100 devices, which rise in the air with no moving parts. The experiment is simple—charge one wire with 20,000 volts, the other wire with minus 20,000 volts, and put a 2-inch air gap between by using balsa wood struts. It draws minimal power unless it shorts out. If one wire is made bigger (for example, by the addition of tin foil), and the smaller wire is placed above the bigger wire, the device will rise into the air once the charge is turned on. The device always moves towards the smaller wire, even when charge is reversed or even when the current is AC, not DC. It is unexplained but it really doesn't matter why the lifter phenomenon happens; the effect is repeatable and irrefutable and will happen wherever the conditions are similar. The earth/cloud system during a thunderstorm looks remarkably similar to the lifter, only a thousand times more massive. The clouds above are the thin wire, while the earth is the big wire. The clouds are charged with millions of volts. Lightning is the shorting out of the capacitor. Water rises hundreds of feet in the air, which seems to imply some kind of an anti-gravity effect of some kind right at the surface of the earth. So we have the right to ask the question, "If the entire earth apparatus can't rise towards the smaller wire, what can?" Tornadoes suggest that it is the air that rises, as it has the freedom to do so. This might also help explain the anecdotal observation that tornadoes die out when going over major cities like Memphis. The charged grids around the cities could alter the capacitance effect. The idea is not without consequences; it suggests tornadoes can be eliminated if we can ground the charges, shorting out the capacitor. Perhaps other "off the wall" type solutions exist to the questions raised by Egely and others. One can hope for an open and frank discussion about novel solutions to some of these age old questions. Even compiling a list of these questions, as Egely has done, is a good first start.

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George Egely Responds: Thank you for your interest in my editorial. In my opinion the root of the trouble is in the dynamics of the spiral movement, as the same problem arises in magnets as well. So it is not the medium that is important, but the symmetry of the movement. Lifters are certainly exciting and an uncharted areas of physics, but here I see no direct relation. In my opinion we pay the price of ignorance on ether (or spacetime); its properties are unexplored.

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Why is a New Beginning in Physics Necessary?

Sometimes one is faced with the statement that "why questions" are not allowed in physics. However, we have to answer the question of why a new beginning in physics is necessary. Thereby, we must first bear in mind how physics research works.

Using very accurate measurement results, physics tries to explain what the natural world is and how natural processes proceed over time. The first step, determining nature, is the most difficult part of the scientific problem, because totally accurate physical measurements cannot be performed and experimental observations are always localized to finite space-time regions. The second step, to determine the time proceeding of physical processes, depends on the recognition of what nature is, and how the constituents of matter interact. This would finally allow one to derive prognoses for the time developments. In order to solve these connected problems one usually establishes some fundamental physical assumptions, known as the fundamental hypotheses.

The fundamental hypotheses must:

— take into account the measuring procedures,
— be generally valid,
— be able to provide a determination of what matter is and from it, how the time-dependent prognoses can be derived within a mathematical formalism.

For the determination of fundamental hypotheses, the most important stage would be to clarify what constitutes physically constant quantities. The principal task of research physicists must be to find the fundamental natural constants which characterize matter and to derive the time-development of physical processes from those constants.

Established physics has considered energy conservation to be the main fundamental principle for over 400 years, despite the fact that closed physical systems don't exist and that, most probably, physical interactions are non-conservative interactions. The best understood interaction, electromagnetic-interaction, is non-conservative. An overwhelming number of physical theories use energy conservation as a fundamental principle: energetic physics has been broadly established. Researchers have tried to connect all important physical quantities to energy.

At the beginning of the last century, at a time when atomistic and energetic physics were set in a irreconcilable duel, physicists decided to wholly back energetic physics: they quantized energy with $E = h \cdot \nu$, declared the energy-mass equivalence, $E = m \cdot c^2$, and also explained gravitation with a stress-energy tensor. Naturally, researchers have also tried to derive the time-developments of physical processes from energy expressions. Classical physics is only half-heartedly generalized to quantum theories. Many un-physical statements remain: it is assumed that a quantum state is completely known for a fixed time, t. The goal of finding the fundamental natural constants remains unrealized, as are generally valid equations of motion. Nevertheless, researchers remain faithful to their fundamental principle of energy conservation and this has led physics into a deadlock. Even today it is impossible to say what matter actually is, or what the quantized interactions are and how they might look. Researchers have further established several ad-hoc assumptions to describe particles and their interactions, such as the spin of particles and the existence of quarks and gauge bosons. Thus, more than the (3+1)-dimensional space-time continuums are currently discussed. Ultimately, a complete physical explanation of nature has not been reached. Despite the overwhelming conviction of researchers, nature is not sufficiently described by established physics. Gravitation could not be incorporated into the established quantum theories.

These are the mean reasons why I have broken from energetic physics.

Initially, I defined the fundamental physical constants and I derived the time developments of physical processes from these constants. I distinguished between matter and interactions, which are present between all the constituents of matter. According to these assumptions, matter is composed of point-like, localizable, physical objects and the interactions are continuous fields. I have thereby subdivided nature into particles and fields. The constituents of matter are fixed, with conserved physical characteristics. It is these physical properties that generate the fields. A further fundamental constant is assumed—the constant propagation velocity of the interactions, c. Therefore, the space-time continuum is described in Minkowski space. The constant propagation of the interactions is independent of the state of matter at the emission. The interaction fields are assumed to be non-quantized; they are non-conservative and are defined in finite space-time regions. At the generalization of classical physics, the measuring procedures are taken into account: I didn't assume exact knowledge of initial conditions. This means that I don't use the exact positions and exact velocities of particles at a given time. And naturally, I didn't suppose that all bodies move in gravitational fields with the same acceleration. I postulated that the constituents of matter have two kinds of conserved physical characteristics. The physical characteristics of the elementary particles are two kinds of conserved elementary charges. These cause the two fundamental interactions between the particles. The only fundamental physical constants are these two conserved charges, together with the constant propagation of the interactions, c. The gravitational and the electromagnetic fields, caused by elementary charges, always appear together.

This theory is a quantized, unified field theory, where only the sources of the fields are quantized with the conserved elementary charges. The theory is an atomistic theory of matter based on four kinds of stable elementary particles carrying two kinds of elementary charges. The theory is further described at www.atomsz.com.

At the concrete realization, I refer to the stable elementary particles, the electron (e), the positron (p), the proton (P) and the elton (E). The elton is often called "the antiproton" in established physics. For protons, their lifetime is measured to be greater than 10+30 years and no proton-decays have been experimentally observed. The four kinds of stable elementary particles have two kinds of conserved elementary charges: the elementary electric charges $q_i = \{\pm e\}$ and the elementary gravitational charges, $g_i = \{\pm g \cdot m_i\}$. The elementary gravitational charges, g_i, are connected to the universal gravitational constant, $G = g^2/4 \cdot \pi$ and to the elementary masses of the proton and electron, m_p and m_e. The elementary masses are not equivalent to energy; they remain constant and can be neither annihilated nor created by any physical processes. It is further assumed that the elementary particles are not composed of other particles. The main difference to established physics is the consideration that gravitation is caused by elementary gravitational charges, g_i, with two signs for the gravitational interaction between particles. Therefore, attractive and repulsive gravitation exist. Gravitation can no longer be regarded as universal mass attraction, or as being caused by the deformation of space-time around masses.

An action integral for the field and the particles is set up in finite ranges of Minkowski space in a form which is valid for all possible high velocity particles. The action integral contains five natural constants; c, e, m_p, m_e and g. Furthermore, for the fields and particles, subsidiary conditions and boundary conditions must be taken into account at the variation principle. The action integral with the subsidiary conditions is taken for the derivation of equations of motions for field and particles. The subsidiary conditions of particles include the conservation of particle numbers. They also produce Lagrange multipliers in the equations of particle motion. The Planck constant, *h*, is one such Lagrange multiplier. But, the action integral is not an expression of energy. The action integral also allows the calculation of bound energies and lifetimes for all composite particle systems with the help of Lagrange multipliers. Such mathematical procedures are unknown in established physics. For composite particle systems both masses (the gravitational and inertial masses) can be calculated and they are generally different. The different gravitational and inertial masses of composite particle systems lead to the violation of the universality of free fall. This is the most important deviation from established physics; see lecture online at https://www.youtube.com/watch?v=WsyJjxC7SRc.

These explanations answer why a new beginning in physics must be achieved. The prognoses of the new unified quantum field theory have to be derived for all possible physical processes and controls must be performed with experiments. Only when the prognoses of the new theory are confirmed by the results of experiments for all physical processes, without any new physical assumptions, would we accept the new theory to describe nature completely. In any case, the laws of nature are non-deterministic, however causal.

Even so, some “why questions” remain: Why do the four kinds of stable particles exist, and why are there so few? Why do the elementary particles exhibit the qualities of having two kinds of conserved physical properties? And why do the interactions propagate with *c*?

However, the solutions of these last “why questions” most probably lie beyond contemporary physics.

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What We’ve Missed

By accepting general relativity theory, we have overlooked the fact that the Michelson-Morley experiment showed us that the space of the earth is unique. In general relativity theory, space is merely a background. Matter simply occupies a position in that space. But the Michelson-Morley experiment taught us that the space of the earth translates with the earth. Since the space of the earth is determined by the material composition of earth, the space of the earth is unique. How far out does the space of the earth extend? According to Robert Carroll,[1] earth’s local space ends where earth’s magnetic field ends. This is about ten earth radii. As we know the magnetic field applies pressure to keep out harmful radiations from the solar winds and from interstellar sources.

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Reference:

1. Carroll, R.L. 1985. *The Energy of Physical Creation*, Carroll Research Institute, 92-94.

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