Breaking Through Editorial: The Einstein Myths — Of Space, Time, and Aether

A discussion about the consequences of Einstein removing the concept of a universal 'NOW' – the absolute simultaneity of events in different relativity moving frames of reference.

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Einstein, the most celebrated scientist of the twentieth century, remains an icon of the power of human reason to penetrate mysterious nature. For billions of people who have been taught the essence of his relativity theories, he changed (or muddled) their very conceptions of time and space. He destroyed the common sense concept of a universal now— the absolute simultaneity of events in different relatively moving reference frames. Physicists grant Einstein full credit for having abolished, at least while his influence has reigned, the pervading "luminiferous aether," which was the medium for the transmission of light waves— universally accepted in the nineteenth century.

Will Einstein's stature extend far into the twenty-first century? Not likely. Enduring will be his justified fame for:

1) explaining the Brownian movement (the visible jostling of particles in liquid suspension from molecular buffeting), which effectively ended the debate about the existence of atoms;

2) his quantum explanation of the photoelectric effect (for which he won the 1921 Nobel Prize in Physics); and

3) his well-known social conscience and beliefs in what has been called "cosmic religion." He is also justly famous for his extreme displeasure with the probabilistic underpinnings of quantum mechanics. ("The theory yields much, but it hardly brings

us closer to the Old One's secrets. I, in any case, am convinced that He does not play dice."— from a 1926 Einstein letter to Max Born).

But believers in Einstein's infallibility will be lucky if the physicist's relativity theories survive beyond 2005, the 100th anniversary of his so-called *annus mirabilis* (1905), the year in which his Special Theory of Relativity and two other major works were published in Germany's *Annalen der Physik*.

For all their apparent predictive power, Einstein's relativity theories are deeply flawed, as the critical papers in this first of two *Infinite Energy* special "Einstein Reconsidered" issues will demonstrate formally. Einstein criticism is, of course, not new. (We are obviously not referring to Nazi-inspired, anti-Semitic tracts against relativity that were published in the 1920s, which disparaged his relativity theory as "Jewish science" or worse.) There are many sources of technical critiques of Einstein's work, such as the dissident journals *Galilean Electrodynamics*,[1] *Physics Essays*,[2] *Apeiron*,[3] *Journal of New Energy*,[4] etc., as well as books by thoughtful critics: Harold Aspden,[5] Petr Beckmann,[6] Peter and Neal Graneau,[7] Ronald Hatch,[8] Herbert Ives,[9] Thomas Phipps, Jr.,[10] and Franco Selleri,[11] to name but a few. There is even an organization, the Natural Philosophy Alliance (NPA),[12] which holds regional and national meetings devoted to critiquing modern physics, especially Einsteinian relativity. This community of dissidents and publications has been completely ignored by a self-satisfied Physics Establishment, which preserves its power and prestige, in part by mystifying veritable "scientific saints," such as Einstein and Stephen Hawking.

What is very new in Einstein criticism, however, is a body of emerging experimental evidence for an energetic aether, which could be tapped to run electrical machines and generate anomalous heat. Actually, it is the *re-emergence* of this evidence for an energetic aether after it was rejected by officialdom in the 1940s and 1950s. Also, a handful of theorists have come to believe that aether-based models of subatomic structures are necessary to explain the anomalies in the cold fusion/low-energy nuclear reaction field. The last issue of *Infinite Energy* featured the landmark article by Dr. Paulo and Alexandra Correa, "The Reproducible Thermal Anomaly of the Reich-Einstein Experiment Under Limit Conditions" (p. 12). This told of Albert Einstein's inappropriate explaining-away of an important thermal anomaly associated with Faraday cages (metal boxes) after the phenomenon was brought to his attention in early 1941 by Wilhelm Reich. **If this and related electrical anomalies evidencing *mass free charge* from an energetic aether are real, as I for one am reasonably sure they are, then it is clear that the standard conceptions of physics, particularly Einstein's relativity theories, cannot be correct.** This, despite their elegant foundation in only a few postulates, such as the *relativity principle* relating specifically to electromagnetism (which Einstein borrowed from Henri Poincaré) and the supposed constancy of the speed of light in vacuum with respect to any observer, which was his own invention.

Einstein's Doubts

Einstein himself at various times had expressed doubts about the edifice of modern physics that he had helped to create— witness the remarks that follow. Perhaps his most serious expression of doubt came in a 1954 letter, the year before he died, to his friend Michel Besso: "I consider it quite possible that physics cannot be based on the field concept, *i.e.* on continuous structures. In that case, nothing remains of my entire castle in the air, gravitation theory included, and of the rest of modern physics."[13] Biographer Abraham Pais hastens to excuse this slip from contemporary certainty about relativity theory, claiming that virtually all physicists think that this self-assessment at the end of Einstein's life was "unreasonably harsh." But just a few years earlier (1948), in an introduction to a popularized book about relativity, **Einstein was also circumspect about physics, in a more general sense: ". . .the growth of our factual knowledge, together with the striving for a unified theoretical conception comprising all empirical data, has led to the present situation which is characterized— notwithstanding all successes— by an uncertainty concerning the choice of basic theoretical concepts."**[14]

In my estimation, Einstein was a person much more cautious about dogmatic expression than those who have claimed invincibility for his relativity theories. In a letter to J. Lee in 1945, Einstein wrote: "A scientific person will never understand why he should believe opinions only because they are written in a certain book. Furthermore, he will never believe that the results of his own attempts are final."[15]

On the other hand, Dr. James DeMeo has unearthed ambiguities in Einstein's reaction to the threatening experimental results from Dr. Dayton C. Miller, who in June 1933 published in *Reviews of Modern Physics*, "The Ether-Drift Experiment and the Determination of the Absolute Motion of the Earth."[16] In the present issue, DeMeo (p. 72) provides an outstanding critique of the Miller work and its apparently glib rejection by others, such as Einstein's biographers, who dismiss Miller's work outright. Though Miller's extensive experimental work is not crucial to Einstein criticism, Einstein's and others' reaction to it is very telling.

Canonization

Ian McCausland, in "Anomalies in the History of Relativity" (p. 19), traces some of the historical reasons for Einstein's rapid rise to dominate the world of physics, following the eclipse observations by Eddington and others in May 1919. These were widely believed to have confirmed Einstein's General Theory of Relativity (1916), which extended the 1905 Special Relativity Theory (SRT) to the realm of gravity and formulated a geometrization of space-time curvature as gravity's "explanation." From *Time* magazine (December 31, 1999, p. 58), this historical truth is acknowledged: "Einstein, hitherto little known, became a global celebrity and was able to sell pictures

of himself to journalists and send the money to a charity for war orphans. More than a hundred books were written about relativity within a year."

But as McCausland reveals, the 1919 eclipse observations were flimsy, indeed, and were in no sense a validation of General Relativity. But from that point on, it was impossible to stop the Einstein juggernaut, even in the face of alternative theories to relativity and experimental observations which contradicted it. **Today, some physicists seem to believe that Special Relativity has been elevated to the level of *fact*, not theory** — criticism of it is neither allowed nor respected. By implication, those who *do* criticize it are foolish incompetents. Witness Caltech Professor David L. Goodstein in his video-taped lecture, "Atoms to Quarks," part of "The Mechanical Universe and Beyond" video physics lecture series (generally an excellent overview of conventionally accepted physics):

. . .there's a point of view that says that the only way that science can make progress is by showing that theories are wrong. The argument goes like this: It's impossible to prove that a theory is right no matter how many experiments agree with it, but if one single experiment *disagrees* with it, then the theory must be *wrong*. Well, that itself is a theory of knowledge, which is wrong! Because, there are theories in science, which are *so well verified by experience* that they become promoted to the status of *fact*. One example is the Special Theory of Relativity— it's still called a theory for historical reasons, but it is in reality a simple, engineering fact, routinely used in the design of giant machines, like nuclear particle accelerators, which always work perfectly. Another example of that sort of thing is the theory of evolution. These are called theories, but they are in reality among the best established facts in all of human knowledge.

No one who calls himself a scientist should *ever* declare that any *theory* is beyond future revision, even drastic revision, no matter how solid the support for the theory may seem to him. Goodstein has fallen into the trap of so many physicists today: They confuse the apparent mathematical fit of several or many of a theory's descriptive formulae with the right to conclude that the theory must be fundamentally correct and without contradiction. Those *apparent* contradictions that are admitted, are patched over with *ad hoc* arguments to save the epicyclic masterpiece. For example, Special Relativity can't properly deal with extended or rigid bodies (*i.e.* real bodies), though it is seemingly fine for point-particles. See comments about that topic in this issue by Thomas Phipps (p. 37) and William Cantrell (p. 12).

The certainty with which the physics establishment reveres Einstein's relativity theories has become a dominant feature of the intellectual milieu of our age. More examples: A brief passage from Marcia Bartusiak's *Einstein's Unfinished Symphony*:[17] "'The worship of Einstein, it's the only reason we're here [working on an expensive federally funded device, LIGO, to test General Relativity by trying to detect

gravity waves], if you want to know the truth,' says Rainer Weiss of MIT. 'There was this incredible genius in our midst, in our own lifetime. . .There's a mystique.'"

Ronald W. Clark, one of Einstein's most illustrious biographers, wrote, ". . .the unqualified acceptance and the experimental verification that had long ago put the Special Theory beyond all dispute were still lacking here [for General Relativity].[18] Special Relativity "beyond all dispute"? Such incautious words.

It is well known that *Time* magazine emblazoned Albert Einstein on its December 31, 1999 cover, designating him "Person of the Century." Inside that issue he was called "first among the century's giants," "its greatest scientific genius," "the person who, for better or worse, personified our times and will be recorded in history as having the most lasting significance," "a symbol of all the scientists," "the world's first scientific supercelebrity," "the century's greatest thinker," and even ". . .the patron saint of distracted schoolkids."

Time et al. **should have heeded this sentiment by Einstein himself:**

"It strikes me as unfair, and even in bad taste, to select a few individuals for boundless admiration, attributing superhuman powers of mind and character to them. This has been my fate, and the contrast between the popular assessment of my powers and achievements and the reality is simply grotesque." (From a 1921 interview with a Dutch newspaper, reprinted in Reference 15, p. 8.)

Next in line for sainthood in physics has been Stephen Hawking, whose involvement with virtually mystical (unproved but highly mathematized "radiating black holes") has catapulted his *A Brief History of Time* book's sales into the high seven-figure range. In his "Brief History of Relativity" for *Time's* Einstein glorification issue, he declares that Einstein "cut through the ether and solved the speed-of light problem once and for all." Hawking states, "I still get two or three letters a week telling me Einstein was wrong. Nevertheless, the theory of relativity is now completely accepted by the scientific community, and its predictions have been verified in countless applications." This shows that even scientific "saints" such as Hawking, are fallible. Correction for Dr. Hawking: Just as the physics establishment refuses to fairly judge the cold fusion/low-energy nuclear reaction experiments of recent vintage, the historical record back to the turn of the century overflows with relativity-falsifying experiments that are marginalized as "unimportant" — just as no doubt are those Einstein-critical letters which Hawking likely does not read. *Time* magazine's editorializing suggested that Einstein's reputation would endure at least one thousand years. Hawking was much more bold: "The equations of general relativity are his best epitaph and memorial. They should last as long as the universe."

The hyperbolic adulation heaped on Einstein's achievements might have been a hint that something was seriously amiss. Personally, I had been brow-beaten into

unquestioning belief in Special Relativity, until in the 1990s I began to question much that is taken for granted by the physics establishment and its army of journalist sychophants. Note these commentaries in books that I have examined over the years:

". . .all barriers are surmounted by a superhuman endeavor which up to now has withstood all tests and attacks. This is the story of relativity."(1954)[19]

"Einstein's special and general theories of relativity have permanently changed our view of space and time and gravitation."(1992)[20]

"The intellectual culture of our time cannot be fully understood without taking into account the impact of the this theory. Not only electrodynamics of moving bodies, but every physical theory that has been formulated since them has had to confront Einstein's revolutionary changes in notions of space and time." (1992)[21]

Perhaps the best interpreter of this institutionalized arrogance has been Thomas Phipps.[10] This passage from his paper in this issue bears repeating: "Toward the end of his life Einstein remarked that he wouldn't want to be starting over again. He died in 1955, at which time he didn't know the half of it. Had he lived another fifty years, he wouldn't have wanted to start to be starting over. For by that time the character of physics had changed: The Einstein doctrines had been set in concrete and the kind of heretical departure from the status quo that his special relativity theory (SRT) originally represented had become 'dissidence'— despised, ridiculed, and banned from the literature by all properly indoctrinated, right thinking physicists. In that short but fateful interval of time Albert Einstein had become the new Claudius Ptolemy and the little world of professional physics had voluntarily condemned itself to a thousand years of trimming down the great world to fit into a bed of 1905 philosophical truth."

To all this Einstein might have replied with good humor, as he did to a friend in 1930, "To punish me for my contempt of authority, Fate has made me an authority myself."[15]

Conservation of Paradox

There are many reasons to be concerned about the persistence of the Relativity theory's aura of invincibility. It introduced a permanent sense of paradox and confusion about time and its relation to space. (If such paradox were necessary, we could live with it— "philosophical taste" is not the fundamental issue in Relativity criticism.) Relativity allowed such probable fictions as Big Bang cosmology and "black holes" to exist— if there is no space-time, only time and space, then there is no possibility of expanding space and time from a singularity at the "beginning of time." Most important is Einsteinian relativity's totally unwarranted abolition of the aether and all that an aether might imply: just possibly, the aether might be a source of energy; it might be a transmission medium for barely imaginable things; and, horror

of horrors, it might have something to do with the functioning of life itself, as Wilhelm Reich had seemed to find in his experiments. These speculations aside, there simply never was a good reason for throwing out the aether. It had been the plenum and medium for light waves to wave, once in the nineteenth century it began to be more accepted that light did indeed have wave-like properties. Earlier, Isaac Newton had insisted that light consisted of tiny corpuscles, and his arguments had dominated for over a century. Then in the early twentieth century there emerged with the birth of Quantum Mechanics a chimeric version of light as *both* wave and particle. Precisely *what* light is, how it or some essence travels across space, and how it is emitted and absorbed are still matters subject to experiment and debate.

The spirit in which Einstein put forth Special Relativity is best captured in his statement, "Physical concepts are free creations of the human mind and are not, however it may seem, uniquely determined by the physical world." (1938, in a book with his associate Leopold Infeld, *The Evolution of Physics*.) A bad beginning, or so it transpired, to have placed a bet on a mental construct without tethering it firmly to the experiments of others. His theory, which (it was *later* said) attempted to explain the experimental record of the late nineteenth century by a novel combination of postulates, was but one of several possible theoretical alternatives that might have preserved *invariance* of physical laws within frames of reference moving at constant relative velocity (see William Cantrell's "Commentary on Maxwell's Equations and Special Relativity," (p. 12). Heinrich Hertz, Hendrick A. Lorentz, and Henri Poincaré had already developed mathematical structures that could have been applied more judiciously over a longer period of time to evolve an appropriate and non-paradoxical theory to deal with the admitted non-invariance of Maxwell's equations. Instead, Einstein with his two postulates made what amounted to an untested, brilliant gamble or guess. He proudly termed it a "free creation of the human mind"— so ambiguously connected with past experiment to the extent that historians continue to debate what Einstein knew or did not know of Michelson-Morley *et al*. and when did he know it.[22,23] Einstein's lucky guess applied the sledgehammer of the Lorentz transformation (the multiplying factor = $(1-v^2/c^2)^{-1/2}$), where v is the relative velocity of two inertial frames) to time and space. When the world of physics prematurely latched onto this "ingenious" formalism, the rush-to-judgment bypassed the careful consideration of alternatives.

The several alternatives to SRT, which are by now substantially developed, do no violence to our basic concepts of time and space as distinct entities. As William Cantrell states eloquently: "Einstein's SRT tampers with space and time in order to force the speed of light to be constant *with respect to all observers*. And it pays the price. The theory is reminiscent of a balloon animal. If squeezed at one end, it expands at the other, yielding an overall conservation of paradox." And as the Correas point out in their paper in this issue, "Consequence of the Null Result of the Michelson-Morley Experiment: The Demise of the Stationary Aether, The Rise of

Special Relativity, and the Heuristic Concept of the Photon" (p. 47), the Albert Michelson-Edward Morley experiment of 1887 (at the Case Institute in Cleveland, Ohio) appeared to rule out a static aether. But certainly, this experiment did not eliminate a *dynamic* aether of some kind that might form something like an "aetherosphere," which was, at least near the surface of our planet, nearly in rotation with it.

It is not the aim of this short editorial space to discourse extensively on the manifold failings of relativity theory, or to detail the alternative theories to SRT which address these. The papers and references we have noted and selected for this issue and the next serve that function well; they are among the best of that technical criticism, but they are just a beginning. (Our apologies to all those other critics of relativity whose excellent work is not showcased.) Our central objective is to show that such criticism does exist, that it is reasoned, and that there have long been open questions about relativity, which have been *deliberately ignored* by the Physics Establishment. We hope that this coverage will inspire those who remain free-thinking and who are not intimidated by the prevailing intellectual tyranny that passes for physics today. We hope especially to reach the uncorrupted— young students of physics who may help pioneer new ways of experiment and understanding.

Yet here lies a central problem and a paradox in its own right. Some critics of Einsteinian relativity have correctly observed that their criticism is weak, because it has lacked a *generally accepted* replacement theory that could satisfy most critics. There are, to be sure, too many competing dissident theories. Thus, the single rallying point of the mainstream, SRT, has triumphed by default. Yet, in striving for a new corrective point of view, one should be cautious not to sanction a new dogma.

The Path Beyond Relativity

There is no question that in the late nineteenth century physics needed to try to find a theory that would extend the *relativity principle* of Newtonian mechanics to optical phenomena and electromagnetism. Einstein's bold, but flawed synthesis seemed to be workable. That its formulae led to excellent quantitative fit in some experimental regimes concealed its all too apparent logical inconsistencies and inability to encompass other experiments. The physics establishment fell in love with the idea that a lone genius, Einstein, had stood on the shoulders of others to come up with the radical synthesis that abolished the aether and conventionally understood space and time. This elevated the profession of physics by establishing an elite group, which boasted that it could comprehend the spatialization of time and the many paradoxes inherent to SRT.

Many may be surprised to learn that the most perceptive critics of Einstein's relativity theories employ rational methods of scientific argument and analysis; they have performed the essential mathematical treatments. It is natural that newcomers may

have misgivings about these critics, because they have been bludgeoned with what have been claimed to be iron-clad proofs of SRT predictions, such as length contraction and time dilation. In truth, the experimental record contains *no* proof of length contraction and it has a highly muddied collection of "proofs" of time dilation *per se*. No, the existence of altered decay of subatomic particles such as muons does not prove time dilation, no matter how often that canard is repeated in textbooks (see, for example the critique by Cantrell). Even the famous **$E=mc^2$ formulation, supposedly one of Einstein's most original concepts, has alternative derivations, some of which were in an advanced state by the time SRT burst forth onto the scene.** And, SRT's famous mass increase with velocity can be viewed quite differently. The infamous "twin paradox" can be abolished. Not only that, there is no reason why advanced space ships could not far exceed light velocity (see Dr. Cynthia Kolb Whitney's papers and conclusions, referenced and summarized on p. 65-66). She notes, ". . .long-distance space travel is seen to be not impossible in principle. We are now limited not by the speed of light, but rather by the speed of thought, which the present author submits is actually infinite when thought is liberated from dogma**." [I strongly agree with this last sentence.]**

The late Herbert E. Ives of Bell Laboratories, one of the most illustrious of Einstein critics, published one of his many perceptive articles in the *Journal of the Optical Society of America*, "Genesis of the Query, "Is There an Ether?,'"[24] which we have reprinted in this issue (p. 30). In this short piece he appears to shred the illogic of Einstein's second postulate (the supposed requirement for the constancy of the velocity of light measured by all observers), and he defines the false constraints (no use of moving clocks to synchronize other clocks), and other problematic assumptions of Einstein's SRT. No matter— you will be hard-pressed to find mention of Ives' compendious work in any of the biographies of Einstein and books about relativity. Perhaps the well-documented approach of Ives' should become a starting point for relativity criticism (see introduction to Ives' work, (p. 29).

Something Overlooked?

It must be admitted that *most* alternatives to Einstein's relativity theories seem to focus on mathematical alterations to eliminate the theories' inconsistencies with the experimental record. But it now appears probable to this reviewer that something much more profound has been missed by most of the critics— the possibility of *new experimental investigations* heretofore overlooked. This new direction is being pioneered by Dr. Paulo and Alexandra Correa, whose laboratory work builds upon the experimental findings of Wilhelm Reich in the middle of the last century and casts their experimental findings in a formalized theory with full mathematical support. (See their newly released materials, available on a new website— www.aetherometry.com— which was to appear shortly after this issue went to press.) Their new publication stream began with their paper in the last issue of *Infinite Energy*,[25] continues with their second paper in this issue, and with another Einstein-

related paper to appear in our next issue ("The Sagnac and Michelson-Gale-Pearson Experiments: The Tribulations of General Relativity with Respect to Rotation").

They summarize the essence of their new direction in their current paper: "The authors propose that Einstein's heuristic hypothesis be taken as factual— the result being that electromagnetic radiation becomes secondary to an energy continuum that is neither electromagnetic nor amenable to four-dimensional reduction. It follows that the second principle of SR only applies to photon production, which is always and only a local discontinuity. It does not apply to non-electromagnetic radiation, nor, *a fortiori*, to the propagation of energy responsible for local photon production." [*Editor's note*: Einstein's "second principle" is the postulate of the supposed constancy of light speed *in vacuo* to all observers.]

In another profound assertion, which goes directly to the heart of unraveling the mystery of $E=mc^2$, they state: "We have proposed our own aetherometric analysis of these type of experiments, where it it shown that the experimental velocities of massbound charges are predicted by a theoretical model that does not take recourse to any of the Lorentz transformations. That means— no time dilation and no relativistic mass increase with acceleration of inertial mass. The inertial mass of a system is only a measure of its rest energy, unlike what SR proposes it is." They have contempt for the relativistic and other orthodoxies that presume to have abolished the aether: "Having become the official logico-mathematical theory of physics, relativistic orthodoxy, as much as quantum and wave mechanics, refuses to conceive of any form of energy that is not electromagnetic or associated with mass-energy. To speak of the aether these days only brings smiles of contempt from institutional physicists— they have already found something better: the intangible 'swarming of virtual particles'." So, will the aether return with a vengeance and an Aether Energy Age soon begin? We shall see.

Finally, what shall we take as the most important thing to be learned from the almost century-long Einstein hiatus in physical theory? As with cold fusion and LENR, which is for all practical purposes the return of alchemy— *proved* this time in scientific studies— is that even the most sacrosanct of ideas, Einsteinian Relativity, can be dead wrong. In fact, the late Richard Feynman may have said it best when he identified what he considered to be the most important implication of Relativity, though in the context in which he voiced this, he certainly did not mean that he thought Relativity itself was wrong!:

What then, *are* the philosophic influences of the theory of relativity? If we limit ourselves to influences in the sense of *what kind of new ideas and suggestions* are made to the physicist by the principle of relativity, we could describe some of them as follows. The first discovery is, essentially that even those ideas which have been held for a very long time and which have been very accurately verified might be

wrong. . .we now have a much more humble point of view of our physical laws—everything *can* be wrong![26]

As regards physics of the late twentieth century and early twenty-first, Feynman (a.k.a. "Genius," so-called by author James Gleick) was profoundly wrong about the "humble" part. But indeed, almost everything *was* wrong, and we must begin anew to correct it, with arduous experiment and new theory.

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According to the general theory of relativity space without aether is unthinkable; for in such space there not only would be no propagation of light, but also no possibility of existence for standards of space and time (measuring-rods and clocks), nor therefore any space-time intervals in the physical sense. But this aether may not be thought of as endowed with the quality characteristic of ponderable media, as consisting of parts which may be tracked through time.Â So Einstein himself answered your question! I do agree there must be an aether. I do not agree with the four dimensional space-time thinking about gravity.Â Space-time is indeed new, modern, fancy name given to old concept of liquid â€˜aetherâ€™. The concept of â€˜ aetherâ€™ was discarded by most physicist. In physics the Einstein aether theory, also called aetheory, is a generally covariant modification of general relativity which describes a spacetime endowed with both a metric and a unit timelike vector field named the aether. The theory has a preferred reference frame and hence violates Lorentz invariance. Einstein-aether theories were popularized by Maurizio Gasperini in a series of papers, such as Singularity Prevention and Broken Lorentz Symmetry in the 1980s. In addition to the metric of general