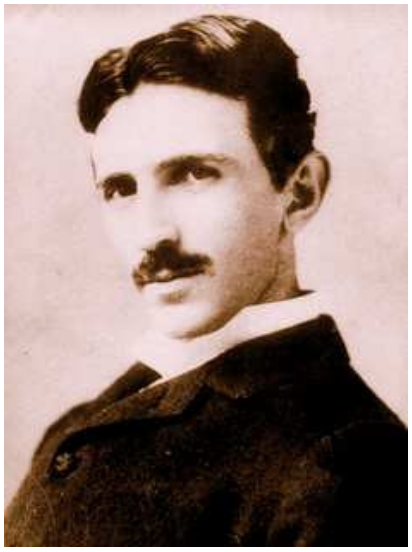
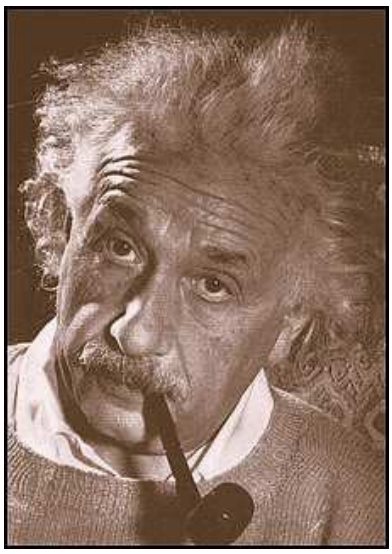
the general science journal

Tesla and Einstein Were Both Right

By Miles Mathis
mileswmathis@yahoo.com

I will show in this paper that Tesla and Einstein were both right regarding the aether or ether. In the current state of the argument, Tesla and Einstein are seen to be on opposite ends of the question, in irreconcilable positions. The standard model interprets Einstein as being against all types of ethers, and they use the Michelson/Morley experiment to prove that. The alternative theorists, sometimes dubbed classicists, agree. They think that Einstein was against any and all possible ethers, since his theory has been sold as a mathematical abstraction.

But Einstein was only against the ether as a transmitter of light. Einstein did not believe that light required a medium for transmission, and he did not believe that light moved *relative to* the medium. Instead, light itself was the medium. The motion of light set the background. The speed of light was primary and the measurement of any other body was determined by that speed.

In fact, in 1920, at his inaugural lecture in Leyden titled “The Ether and the Relativity Theory,” Einstein said, "the ether concept has once more acquired a clear content. The ether in the general theory of relativity is a medium which itself is bereft of all mechanical and kinetic properties, but which has a share in determining mechanical and electromechanical occurrences." Now, what does that mean? Well, notice that he uses the word “electromechanical”. He is telling us that the ether must now be considered a *background* for the E/M field; but that the ether is not a field itself.

Einstein calls his GM ether a “medium” here, but that is not really accurate, either. That is one of the reasons he later distanced himself from this quote. If the ether is bereft of all mechanical and kinetic properties, it cannot be a medium, by the normal definition of medium. A medium that is bereft of all mechanical and kinetic properties is a background, not a medium. But how could a background that had no mechanical or kinetic properties have a “share” in determining occurrences? In GM, it could do so only through its

curvature. [Notice that Einstein thinks that curvature is not a mechanical or kinetic property of space. We will return to that in a moment.]

Tesla was usually not too concerned with theoretical questions like this, but as far as the question interested him, he agreed with Einstein. Tesla was not a supporter of Maxwell's ether. Tesla found Maxwell to be ham-handed in many ways, and said so. The ether that Tesla believed in was an ether created by the E/M field. In fact, Tesla's ether has much in common with my foundational E/M field, a real bombarding field emitted by all quanta and all objects. He stated that this field diminished with the square of the distance from Earth (or any spherical object), and my foundational E/M field does this (minus time differentials). He stated that this field combined with the gravitational field, and was often more powerful than it. I have shown this in my Cavendish paper and many other papers.

Einstein was a theorist, not an experimenter like Tesla. He did not know of the foundational E/M field. Almost no one except Tesla has known of it, even among other specialists in electricity. The field I am talking about has concerned only quantum physicists up to now (since it is the field mediated by their ridiculous "messenger photons"). So Einstein could not be expected to have included this field in his theories of the macro-world. But he never denied the existence or importance of the electromagnetic field, and he would never have denied the possibility that other unknown fields existed, even ubiquitous and powerful fields. He would only have denied, based on his theory, that they would be considered the "background of space." As he showed, space has no background except the motion of light.

He is correct about this, and it is one of two major reasons I refuse to call my foundational E/M field an ether. The other reason is also historical. Tesla called his field an ether, since it was ubiquitous and powerful. It allowed many things to happen, and caused many things to happen. It was fundamental, as fundamental as gravity, or moreso. While admitting all that, I refrain from referring to my foundational E/M field as an ether **because it does not fit the even older and more famous definition of ether as the mediator and facilitator of all motion.** According to the 19th definitions, the ether was invented to explain the motion of light. It seemed to physicists at that time that light needed a medium through which to propagate, just as sound needed air through which to propagate. Especially as regards the wave motion, it was not understood how light could show this wave without a medium.

Using stacked spins, I have shown how light moves in a wave pattern without the need of any medium. The wave is internal to each photon, and the analogy to sound waves in air completely breaks down. The wave motion of light is not a pattern in a medium, it is real motion of each quantum. You will say, "Motion relative to what?" Motion relative to the previous position, or relative to the void, or relative to a graph you superimpose over the moving quantum. Motion does not require a medium, it only requires a background. That background is automatically created relative to previous positions. You don't need a medium to describe the motion of quanta. You only need a mathematical or diagrammed background, and previous positions give you that.

In fact, requiring a physical medium for all motion is a *reductio ad absurdum*. Say that we do define Tesla's "ether" as the medium. Say that we do define my foundational E/M field as the medium against which the speed of light is calculated. We obviously run into an immediate problem, since my field or Tesla's is made up of some kind of photon or other emission, fluid or particulate. At that point, you are defining the motion of light against a background of invisible E/M photons. But that brings up many questions: 1) Which photon is more fundamental? The light photon or the photon that transmits the E/M field? 2) How can you measure one against the other? Aren't they both going c? Or, if they are not going exactly c in all situations, won't they both vary in the same way for the same reasons? 3) If the light photon is moving relative to the E/M or ether photon, what is the ether photon moving relative to? Don't we require a sub-ether as a background to the ether photon? 4) It seems we need something that is not moving to be our medium, but Tesla's ether field, like my foundational E/M field, is made up of moving particles.

The only thing that is not moving is the void. But calling the void an ether is pretty much admitting defeat. If the void is the ether, then Einstein was basically correct. Einstein's only real crime was desiring to put a finer point on a thing than most people care to put on it. Most people today who want an ether simply mean they want the standard model to quit ignoring the E/M field in all its contexts, and to quit interpreting Einstein in narrow, abstract mathematical ways. To this extent I agree with them. To this extent, Einstein would have agreed with them, too.

Now, Tesla disagreed with Einstein on many things while they were both alive. I am not ignorant of that fact, nor am I denying it. For instance, he said,

I hold that space cannot be curved, for the simple reason that it can have no properties. . . . Of properties we can only speak when dealing with matter filling the space. To say that in the presence of large bodies space becomes curved is equivalent to stating that something can act upon nothing. I, for one, refuse to subscribe to such a view.[1]

However, if we study that quote a bit more carefully, we find something very interesting. Tesla tells us that space can have no properties, since it is a "nothing". Only matter can have properties, not space. I agree with him completely. And, although I accept the numerical findings of General Relativity, I do not accept curved space any more than Tesla. But, if space has no properties, that must also rule out the classical ether. The pre-Einstein, pre-Tesla ether was the giving of properties to space. According to this idea, space had or might have qualities such as permittivity, resistance, pressure, and so on. At the very least space must have structure, since it was this structure that explained the wave motion.

Curiously, current theories of space also give space many qualities. Physicists who claim to have no time for classical ether arguments end up giving space pressure and materiality and so on, consisting of virtual particle pairs or bosons or a host of other theoretical particles or properties. Perhaps most importantly, the current cosmological constant Λ gives space an expansion, as I have reminded my readers in other papers.

Tesla would have disagreed with classical ether theory just as strongly as he would now disagree with current standard model theory, since both theories give properties to space. Maxwell's ether was both ether and medium, but Tesla's ether was neither. Tesla's ether was in fact a field--a field inhabiting empty space. And empty space is neither ether nor medium. For Tesla, space was not a medium or an ether, it was a background. And although Tesla disagreed with Einstein here as well, Einstein was less wrong than the others. Einstein agreed that space was neither medium nor ether--if either word included the idea of mechanical or kinetic properties. For Einstein, space was a background.

Of course, Einstein gave this background the property of curvature, but I have shown that GR can ditch curved space with no lasting theoretical effects. If you turn the field inside out like I have, you rid yourself of curved space, the tensor calculus, and all the needless additions to relativity, while keeping the time differentials and other transforms that have been shown to work. This means that Einstein and Tesla were in agreement at the most fundamental level, since in their field theories both were reacting against the physicality of the classical ether. Neither of them believed in it. Einstein's only problem was keeping a residue of that ether in his curved field, with a curvature he didn't even require. As Tesla pointed out, this curvature gave Einstein's space a property, and that gave Einstein's theory an inconsistency. Einstein created his field equations in order to bypass the classical ether, and he wanted to bypass the ether because it wasn't logical. But then he gave space a curvature, which wasn't logical either. He thought curvature was mathematical only, but in GM a curve acts as structure, and structure is a property. In fact, *it is a mechanical property*. It is both mechanical and kinetic, since it is the ultimate explanation for motion. In Einstein's field equations, curvature is the ultimate cause of both motion and (apparent) force, therefore it must be both mechanical and kinetic, by the definitions of those two words. If curvature in GR is not mechanical, nothing in the universe is mechanical. The standard model can claim that GR is only geometric, but the geometry is the ultimate cause of motion and force. This must make it mechanical and kinematic and kinetic, all three.

This fact contains a great deal of irony, since it means that Einstein actually had more of an ether than Tesla. Tesla called his E/M field an ether, but it was a field, not an ether. Einstein called his field a field, but it was an ether, not a field. Curvature gave his field a mechanical property, and a fundamental field that has a mechanical property is not a field, it is an ether.

So, Einstein was wrong about curvature, but right about the ether. He agreed with Tesla that the ether, as a quality of space, was illogical and non-mechanical. He stated that the motion of light required no ether, and he was correct.

And Tesla agreed with him. Tesla's light, electricity, or other forms of radiated matter required no ether of the classical sort. He might call his particles or fluid an ether, but the motion of this ether did not require a medium. It couldn't, since Tesla said that space was nothing. If the "nothing" exists, then the classical ether does not exist. If there is a void, there is no ether. If the void exists anywhere, in any way, then light must travel through it. If light can travel through it, then light requires no ether for propagation. That is simple logic. If light can travel as a wave without an ether, then the entire classical argument for the ether collapses. Once that is understood, then all modern ethers should no longer be called ethers. They should be called fields. Fields made up of radiated sub-particles or fluids are not ethers, they are fields. I think this is a very important distinction. It clears up a lot of fake and manufactured and unimportant differences between people like Einstein and Tesla.

Another reason I can't sign on fully to the ether is that contemporary ether proponents often use this misunderstanding of Einstein, by both the standard model and the classical model, to dismiss him *in toto*. I have shown that this is a mistake. The standard model's interpretation of Einstein is wrong, and Einstein made some pretty spectacular errors himself. But Relativity is not wrong. Time differentials do exist; and transforms, when they are in the correct form, do work. Curved space is a poor explanation of General Relativity, but time differentials in fields created by spherical objects do work in much the way that Einstein said. His equations are way too complex, and they are inside out, but they are basically correct. Nor were all his equations stolen from Poincare or Lorentz or Mileva or anyone else. He borrowed from all over the place, sometimes with less finesse than might have been wished. But if we erased him from history, we would not know all we now know. We cannot add up Lorentz and Poincare and all the rest and get the same final result. If nothing else, Einstein pushed all these others to conclusions they were not making at the time, and not guaranteed to make, ever. Even if we demote him to only a synthesizer, the importance of synthesis is extreme, especially in the history of physics. Those who force old ideas together, and force those synthesized ideas into the papers and journals, deserve the credit and attention they get, in my opinion.

So, to sum up, Tesla and the proponents of the ether were and are correct insofar as they are demanding that a powerful, mostly unknown field exists, linked to E/M--a ubiquitous and fundamental field mostly ignored and mis-defined by the standard model. They are correct that it exists at all levels, quantum and terrestrial and cosmic. They are correct that it may be dubbed "creational", since any fundamental emission field would have to be admitted to be "creational" in one sense: it causes everything and its cause is unknown. They are only incorrect when they assume that Einstein's theory forbids this field, or when they assume that Einstein would have any serious qualms about integrating this field into his UFT, given what we now know. I am quite certain that Einstein both *would* do it, and *could* do it. This "ether" can easily be incorporated into Relativity, as I know since I have done it. We take Tesla's field and slip it right into Newton's old equation. Then we do transforms on it (when necessary). This is precisely what I have done in my unified field.

All the theoretical roadblocks are only in people's heads. They are only political. We have many parties squabbling over secondary matters, squabbling over misunderstandings and manufactured differences. The truth is that Einstein and Tesla are both correct about almost everything, and that we can stir them into a new pot without much trouble at all.

[1] *New York Herald Tribune*, Sept. 11, 1932

/TR>