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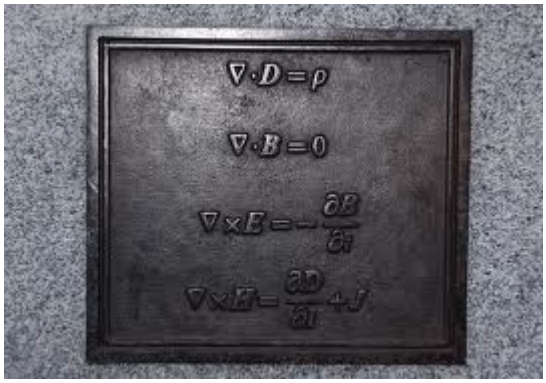
Maxwell's Equations
are also
Unified Field Equations



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In previous papers, I have proved that Newton's gravity equation is a disguised unified field equation, that Coulomb's equation is a disguised unified field equation, and that the Lagrangian/Hamiltonian is a disguised unified field equation. I have just discovered that Maxwell's equations are also disguised unified field equations.

To discover this, I had to be sent by a reader to Maxwell's lesser known displacement current. The reader (Steven Oostdijk—an electrical engineer) didn't send me to find what I found, but I thank him nonetheless. It took me about ten seconds to see this, and for alarm bells to go off:

$D = \varepsilon_0 E + P$

That is Maxwell's equation for the electric displacement field, where E is the electric field intensity, P is the polarization of the medium, and ε_0 is the permittivity of free space. The alarm bells went off as soon as I saw ε_0, since I have shown in previous papers that the permittivity of free space is misassigned to free space. We should have known that, since free space cannot have any physical characteristics like this. If it did, it would be neither free nor space. In writing the unified field equations, I showed that the constant ε_0 actually stands for gravity at the quantum level.* The constant ε_0 can be written as $8.85 \times 10^{-12}\ /s^2$, but it can also be written as $2.95 \times 10^{-20}\ m/s^2$. Just divide through by c. You will say the dimensions don't work, but they do, as you can see by going to that previous paper. At any rate, in unrelated calculations, I found that same number for the gravity field of the proton. The constant is not the permittivity of free space, it is gravity as created by nucleons.

Of course this means that Maxwell's equation above is already unified. It contains the gravity field at that level, and is therefore another Unified Field Equation, UFE. Since Maxwell used the displacement current equation to modify Ampere's Circuital Law, we can say that Maxwell's equations are unified.

$$\nabla \cdot \mathbf{E} = \frac{\rho}{\varepsilon_0}$$

$$\nabla \cdot \mathbf{B} = 0$$

$$\nabla \times \mathbf{E} = -\frac{\partial \mathbf{B}}{\partial t}$$

$$\nabla \times \mathbf{B} = \mu_0 \mathbf{J} + \mu_0 \varepsilon_0 \frac{\partial \mathbf{E}}{\partial t}$$

The displacement field equation is also proof of my real charge field, since—as defined by Maxwell—this field is not created by electrons or any other ions. Maxwell's displacement field pre-exists any field created by ions. In fact, if we study Maxwell's use of the displacement field, we find it *creates* the E/M field. The displacement current has dimensions of density, just as my charge field has, and if we go to Wikipedia, we find this:

The displacement current has an associated magnetic field just as actual currents do. However it is not an electric current of moving charges, but a time-varying electric field.

What does that mean? It means it exists whether or not you have any ions in the field. It is a sub-field to the Electromagnetic Field, and is not equivalent to it. As a matter of straight mechanics, it is the displacement field that creates Electromagnetism, not the reverse. Again, this matches my definition of the charge field. It is the charge field that is primary, and the E/M field that is secondary. Charge is photons, E/M is ions. The photons drive the ions, so they are the fundamental field.

So we already see that Maxwell's displacement field is simply another name for my charge field. And this explains—in yet another way—why the charge field has been undercover for about 150 years. In Maxwell's equations, it has been the electrical field and magnetic field that have gotten all the attention and fame, while the displacement field has been all but hidden. The displacement field has always been seen as little more than a mathematical manipulation, one used to push the equations in line with data. But almost no work has been done in a century and a half to explain the real workings of this displacement field. In fact, the mechanics of the displacement field is purposely hidden to this day, as we can see from this quote at Wikipedia:

There is no free charge in such a material [a bar electret], but the inherent polarization gives rise to an electric field. If the wayward student were to assume the D field were entirely determined by the free charge, he or she would immediately conclude the electric field were zero in such a material, but this is patently not true. The electric field can be properly determined by using the above relation along with other boundary conditions on the polarization density yielding the bound charges, which will, in turn, yield the electric field.

That quote is completely catholic, and no current expert would likely disagree with it. But it is false

nonetheless. See how the standard model explanation uses the word "inherent"? Compare that to their use of "intrinsic" in other places. In all places, these words are used to misdirect you away from real mechanics. They do not have any real mechanics, so they imply that any student who expects real mechanics at the quantum level is "wayward." Another curious wording, wouldn't you say? Expecting physical explanations from physics is now wayward. Since current physicists cannot answer the questions of students at any level, they have to divert everyone into inherent and intrinsic properties. Another word for inherent and intrinsic properties is "unreal", although they don't tell you that. To get their theories to work, they have to hide all real parameters at this level, telling you they don't exist. They then replace those parameters with virtual parameters. They can then manipulate these virtual parameters with their dense mathematical systems, forbidding you from asking mechanical questions. "You cannot ask mechanical questions about virtual particles or parameters!" Convenient for them, isn't it?

You see, the problem is they can't figure out how the charge in D is moving, so they just pretend it isn't. In their limited world, the charge is either moving or static. If it is moving, it is free, and they couldn't make that work. So it must be "bound." But I have shown the answer is neither free nor bound. The charge is moving, but it is not free. It is *channeled*. [See my long paper on nuclear structure for more on how nucleons channel charge.] In the presence of ions, the charge field is channeled in defined vectors, which not only prevents dissolution of the ions and nuclei, but it also explains things like the magnets and electrets above. Moving charge sums to zero only in the case that it is free and unchanneled. But if it has a summed vector defined by charge channeling, then the qualities of magnets and electrets can be explained mechanically.

We see their confusion again when it comes to explaining capacitors:

An example illustrating the need for the displacement current arises in connection with capacitors with no medium between the plates.

No medium between the plates! It is 2013, over a century after Tesla, and we still have physicists telling us there is no medium between the plates! And you wonder why these guys end up with vacuum catastrophes and dark matter meltdowns?

In the very next sentence, they say:

The capacitor is in a circuit that transfers charge (on a wire external to the capacitor) from the left plate to the right plate, charging the capacitor and increasing the electric field between its plates.

Wait, there is no *medium* between the plates, but there is an electric *field*? So a field can exist with no medium? The field is nothing? Aren't these particle physicists the same guys that have "no force at a distance" on their t-shirts and gimme caps? If there is no medium, how is the field expressed between the plates? Don't tell me, let me guess: virtual photons. Mystical messages etched on the faces of ghost particles.

As you see, the displacement field has been covered over with dirt since the time of Maxwell, just as I said. I have repeated in dozens of papers that the charge field has become virtual, and we see here I am right. Current physics treats the displacement field as mathematical only, or as a theoretical convenience. But it does not work like any real field.

Amazingly, modern theorists try to sell this fudge as a great advance:

Few topics in modern physics have caused as much confusion and misunderstanding as that of displacement current. This is in part due to the fact that Maxwell used a sea of molecular vortices in his derivation, while modern textbooks operate on the basis that displacement current can exist in free space.

As you see, they are trying to convince you that the problem isn't that *they* have gone virtual and are not doing physics anymore. The problem is that silly old Maxwell was trying to explain this with mechanics. What kind of fool was he, a physicist trying to be physical?

In fact, we see that Maxwell was on the right track with his vortices, since we require real spins in the displacement field, beneath the magnetic spins in the E/M field of ions. They are not "molecular" in the way we understand molecules now, but they *are* vortices. Each photon can be thought of and act as a tiny physical vortex, since each photon is spinning. This is what explains the displacement field, not the current dive off into heuristic math. Wikipedia says,

Clearly Maxwell was driving at magnetization even though the same introduction clearly talks about dielectric polarization.

But we now know it is neither. Maxwell wasn't driving at magnetization, nor was he driving at dielectric polarization. He was driving at real *sub*-magnetic polarization of real particles, which is what my charge photons give us. My charge field theory might be called either magnetization or dielectric polarization, but it is strictly neither. Why? Because both terms are currently used as descriptions of the E/M field, and my charge field is not a part of the E/M field. Although my spinning photons give us both polarization and a spin field (magnetic field), they do so via a *sub-level* of influence. Again, E/M applies to a field of ions. Charge applies to a field of photons, and photons are not ions. Since the photons drive the ions, the charge field is at a sub-level beneath the E/M field. The E/M field is only an outcome of the charge field. But because those in the mainstream misunderstood Maxwell's definitions and delineations, they have since conflated the two fields. Because they only have one field, they cannot describe the motions and forces they see in data.

We can also see the problem here:

Maxwell concluded, using Newton's equation for the speed of sound (*Lines of Force*, Part III, equation 132), that "light consists of transverse undulations in the same medium that is the cause of electric and magnetic phenomena."

You can see the conflation there, and the confusion. Whether the confusion is completely in the minds of those who came after Maxwell, or whether some of the confusion was his own, is not completely clear. But that quoted sentence is true only if you read it correctly. It has not been read correctly. It is true only if by "in the same medium", Maxwell means in the same general space. But the way it has been read historically is that light is undulations in the E/M field. **Light is NOT undulations in the E/M field.** Light is its own field. Furthermore, light is not undulations in anything. The wavelength of light is not a field undulation, it is a spin wave caused by each individual photon. Each photon has a wavelength, as we now know, and the only way it can have that is if the spin of the photon causes the wave. As I have said a hundred times, light is a spin wave, not a field wave.

We have since discovered field waves in the charge field, but these waves are not photons and are not light. They are neutrinos. Neutrinos are "undulations" in the charge field. But they are not thereby undulations in the E/M field. The E/M field and the charge field are completely separate. The charge

field influences the E/M field, but they are not the same.

Like everything else we have looked at, the mainstream has this one upside down. They think that light is moving in the E/M field. But it is actually ions that are moving in the light field. The charge field is primary, and it sets the ion field. Not the reverse. Light doesn't move in the E/M field. Light moves in the charge field, which is its own field. Light is charge and charge is light. Strictly, light doesn't move in any field. Light IS the fundamental field. The motion of light sets all the fields in sizes above it.

In this way, charge field theory ties into Relativity, since Einstein basically proposed the same thing. In telling us that the motion of light determined the motion of everything else, Einstein was saying the same thing I am. He never made the connection as explicit and clear as I am making it here, but that is his most fundamental link to Maxwell. Just as Maxwell was (sometimes) trying to do, Einstein based everything on light. But now physicists have turned that on its head. They now try to define the motion of light relative to the E/M field. Since the E/M field is a creation of light, that can't work. They have cause and effect mixed up.

To finetune your understanding of my charge field, we may go directly to Maxwell's paper of March, 1861 *On Physical Lines of Force*. Early in that paper, we find him explaining the magnetic field as a function of stress (p. 164).

We must therefore represent the magnetic force at a point by a stress having a single axis of greatest or least pressure, and all the pressures at right angles to this axis equal. It may be objected that it is inconsistent to a represent a line of force, which is essentially dipolar, by an axis of stress which is necessarily isotropic; but we know that every phenomenon of action and reaction is isotropic in its results, because the effects of the force of the bodies between which it acts are equal and opposite, while the nature and origin of the force may be dipolar, as in the attraction between a north and a south pole.

Although Maxwell is fudging a bit here, I must pause to say how refreshing it is to read a paragraph that is mostly logical and clear. One can understand exactly what Maxwell is saying on a first reading. It doesn't require translating a bunch of lingo and misdirection, trying to make sense of nonsense. But how is Maxwell fudging a bit? Well, he is trying to make you think it isn't really important that his stress is isotropic. Although he finds ways around it, it IS important, because it tells us he doesn't have a real understanding of his field. Because he doesn't understand that his field is being created by moving particles that have both linear motion and real spin—and that this spin can be either up or down—he doesn't start off with enough degrees of freedom to solve. He doesn't really need pressure or stress to solve magnetism, he just needs linear motion, real spin, and particle density. But because he doesn't see how to solve in the simplest manner, he solves in more complex manner, and is thereby forced into some greater or lesser pushes. We are seeing the first push here. If we start only with a line of force, there are NO pressures at right angles to that line. It doesn't really matter if we call the stress dipolar or isotropic: if it has “a single axis” it is thereby linear and not spherical. Since a single axis cannot be orthogonal to itself, we cannot talk of angles, right or otherwise.

You should see that my spinning photons solve this problem immediately, since every “point” in the field can be inhabited by a real photon, and that real particle already has potential forces at right angles to one another. Maxwell's problem here never comes up for me. In my field, every point is already sub-magnetic and sub-electric, since every single photon already has the motions that cause both fields.

I will be told that I have already misunderstood Maxwell, because what he is really doing in this section is creating a state of stress symmetrical about an axis, but with variable stress down the axis.

This makes his axis a sort of straight hose running z, with stress symmetrical only around each x,y, but not symmetrical down z. In this way, the hose can be squeezed like a tube of toothpaste, forcing the paste one way or the other. I agree that is what he has done, but he has already cheated. What he has proposed isn't a *line* of force or stress, and nothing here is either isotropic or dipolar. His stress in x,y is circular and centripetal, and his stress in z is linear; but his *motion* in z is dependent on variations along z in x,y. As I said, his explanation is too complex, and this allows him to slip in things unanalyzed and undefined. To get this field of his to work, he will have to show a mechanical source for both these centripetal forces in x,y and their variations along z. To do this, he explains the x,y force as a sort of hydrostatic pressure and the z force as tension along the axis. But there are big problems with both.

The first problem is that hydrostatic force doesn't normally set itself up that way, as he has previously admitted in earlier paragraphs. Hydrostatic force is normally 3D. Only a limited hydrostatic force would act like that, as with our hose or tube of toothpaste. But no fundamental field would be expected to arrange itself circularly around selected axes. What determines if a point in the field is on an axis or in the pressure field around it? How does the field choose its own axes or lines?

The second problem is the z force, which is really only a reaction to the first force. But to get any reaction from the line, it can't be a line. It must be a tube. You cannot pressurize a point or a line. You can only pressurize a volume. In other words, the word “pressure” only makes sense with regard to real bodies that have real extension in 3D. Pressure applied to a point or line is meaningless and nonphysical.

This also means that Maxwell now needs some field inside his tube of influence that is not strictly equivalent to his field outside of it. He has two fields that are acting differently, so he must show us some difference. Why are one set of field particles inside the line and another outside? Why is one set pushing on the other in a circle? Hopefully you now see what I mean by too complex. Maxwell has overcomplicated his fields and forces from the start. None of these problems come up for me, because I understood I needed a homogeneous field at the foundation. Since the charge field is the fundamental field of the universe, it has to be easily universalized. A field of real spinning particles can be universalized. A field of pressurized tubes cannot. Maxwell has the same basic problem string theorists have, though on a lesser scale. He has created a small mess where they create a large one. And, we can see that string theorists got their ideas straight from Maxwell. His little tubes here are the obvious theoretical precursors to strings. If you read my paper on string theory, you will see that both fail in the same way.

We can see more similarities if we continue, for Maxwell next says,

It appears therefore that the stress in the axis of a line of magnetic force is a tension, like that of a rope.

In string theory, precisely the same idea is used. But in both theories, the idea is very faulty. Maxwell's external stresses in x,y, varying along z, cannot create tension as in a rope. A rope is pulled from the ends, whereas his tube is being squeezed from the sides. His hydrostatic pressure is symmetrical *around* the axis, not to its ends. How do I know? Because he says his hydrostatic pressures are at a right angle to his axis. If the pressure were coming from the ends of the axis—as with a hose being turned on at a faucet—then there would be no right angles. With a hose turned on like that or with a rope, we have equal tension or pressure along z. But with Maxwell's tube, we would have unequal pressure along z. It is precisely that unequal pressure that would cause motion along z, as with toothpaste. Either Maxwell misunderstands his own field, or he has described it very poorly.

Maxwell now tries to explain how a real field could create his lines of force. To do this he brings in his vortices. If we let these vortices be created by spinning spheres, we would let the poles align with his lines. His hydrostatic force is then caused directly by the centrifugal force of the eddies. In other words, the spheres spin, a centrifugal force is created at the equator of each photon, and this force is then transmitted sideways to Maxwell's line.

From this, you see how different Maxwell's theory is from mine, despite having a few external similarities. Maxwell needs his photons arranging themselves in little cylinders around his lines. But he has no explanation of what causes the lines in the first place. Why would photons arrange themselves in cylinders around lines? How big is each cylinder of photons or vortices? What determines the radius of each cylinder? Do you need only one vortex around each line, so that each cylinder is only one photon wide? Or not?

Notice how much simpler the explanation and field both are if we start with the photons instead of the lines. Let us say all our photons in a given field are aligned, with their poles all pointing the same direction (or summing to the same direction). Well, we already have Maxwell's field lines in that case, without further ado. Every photon becomes its own cylinder, and it affects its neighboring photon almost like Maxwell's vortices affect his lines. Except that we can simplify the mechanics even further. We don't need to propose that the photons affect one another across empty space by sending out eddies, and we don't need to propose centrifugal forces at the equators either. It is much simpler to propose that the photons collide equator to equator, you see, and transmit spin force by contact. That way we don't need force at a distance, we don't need a medium for the eddies, and we don't need centrifugal forces.

We also don't need photons existing side to side. Maxwell either needs a medium for his eddies or he needs a plenum, where his vortices are existing edge to edge. In either case he begs the paradox of Parmenides, where he has a block universe with no space and no room for motion. My field of photons does not hit that paradox, since real collisions don't require either a plenum or an intervening field. Nothing is stopping my photons from jostling side-to-side, moving a bit amongst themselves as they travel c. This jostling allows them to "communicate" by real collision, with no other medium, no eddies, and no plenum. Since the spins are real, angular momentum can be transferred in any collision. Collisions only require a real substance with a real boundary, which admittedly begs other questions. However, the questions begged are less vicious than the questions begged by a plenum, and they are questions not fatal to any physics. Physics assumes substance from the start—hence the name *physics*. Which is to say that in physics, the assumption of substance is never a contradiction or a paradox. It is not only allowed, it used to be *required*.

My theory is also preferable to that of Maxwell in that the photon forces don't work upon some dreamed-up field line. They work upon *eachother*. My photons never interact with a field, they always interact with other photons or with ions. If we assign any pressure in my field, we do not assign it *upon* the field. We assign pressure by one photon upon another photon or upon an ion. The field is never an active player in any of my theories. In the charge field, the photons *are* the field. We sum individual motions and collisions to find field potentials. Field potentials do not cause anything. Photon motions and spins cause field potentials, which then may cause greater motions by summation.

You will say, "OK, then what causes your photons to align, as above? Maxwell proposes the field lines first, because he knows your photons need a reason to align. He probably thought it was a cheat to started with aligned vortices, just as you think it is a cheat to start as he did." But it isn't a cheat to start with aligned photons, since we are given them in many real-life situations. For instance, if we are

given any matter, we will find the charge field channeled by that matter. As the photons are re-emitted by that matter, the charge field will naturally be aligned. Or, I should say that if the photons are *not* aligned as a matter of spin or pole, there will be no magnetic field. If there is no magnetic field, we don't need to explain the genesis of it. If there *is* a magnetic field present, it will be caused by the spin alignment of the photons. And if the photons are spin-aligned, it will be because the matter present has aligned them. To find or create any magnetic field, we must have matter present, and we must have the right matter in the right state. It is the channeling of charge through matter that causes magnetic fields. Yes, each photon has a tiny magnetic field of its own, caused by its own spin. But that isn't enough to create a magnetic field we can measure.

You will say, "That is just circular. You said photons create magnetism, but now you are backtracking. Now you tell us matter causes magnetism. It can't be both. You can't have photons causing matter to be magnetic and matter causing photons to be magnetic." Actually, you can, if you speak clearly enough. You need photons with spin to create magnetism, but photons with spin are not enough by themselves. If you have photons but no larger particles or objects, your photon spins are chaotic and don't sum to anything, not even locally. Nothing above the size of the photon will feel any magnetic effect. But if you can channel the charge through matter, you can create spin alignment and therefore a larger magnetic field.

My reader will still not be satisfied with that, although as physicists we are given matter just as we are given substance. He will say, "That is still circular, since you need matter in alignment before you can get charge in alignment. What caused the matter to align? It can only be charge, right? Well, what caused the first alignment? What caused the first non-chaos in the charge field?" I don't know, and I don't think I am required to know in order to propose my theory. Even with no answer to that question, my theory is better than Maxwell's and it is better than current theory. Neither Maxwell nor current theory can answer that question, so they don't beat me on that score. It is not necessary that I present my readers with a first cause of everything before I am allowed to theorize about later things. I am not presenting a *perfect* theory, I am presenting a *better* theory. Since my theory does not require undefined stresses, tensions, field lines, or forces, it is a better theory. Since it explains a lot of things mainstream theory has not been able to explain simply and mechanically, it is a better theory.

Notice that Maxwell also avoids explaining why his vortices align with his lines, but he never gets around to addressing it, as I just did. Because his explanation is denser, you forget to ask the question. It is precisely because my explanations are so short and concise that readers see so many questions. I have to answer far more questions than the mainstream, and that is why. Most readers can't even penetrate what the mainstream is saying, so questions don't arise. Of course the mainstream does that on purpose. Theories are put into dense math and lingo expressly to prevent questions.

After studying Maxwell's paper closely, I can see that the original fault here is his. He has not been misunderstood or misinterpreted. There has been no misreading, there has simply been a failure to correct him. The central problem here is that he thought and proposed that light was a wave in the E/M field. So he had it upside down from the start. Since electricity and magnetism were discovered before charge and were far easier to study, Maxwell naturally took them as primary. Electromagnetism is the motion of ions, while charge is the motion of photons. Since photons are very much smaller than ions, they hadn't been studied in Maxwell's time. We still know almost nothing about them. For this reason, Maxwell took the E/M field as the foundational field, and tried to fit light into it, explaining light as a field wave in the E/M field. But this is upside down. Light does not move in the E/M field, ions move in the light field. The motions and spin of photons create everything, including ionization, magnetism, current, and so on. The charge field is the fundamental field, and the E/M field is only a creation of it.

This one reversal explains most of the confusion that still exists.

Go to part 2, where I show how Maxwell's vortices fail, how to correct them, and how to calculate the charge field straight from the Electrical Field.

*This is not to be confused with quantum gravity, since by "quantum gravity," the mainstream currently means *quantized* gravity, not gravity at the quantum level. I am not only showing how gravity is unified with charge, I am showing how the old equations were already unified. In other words, we don't have to unify the math we have. It is already unified, and we simply have to see where it contains gravity.