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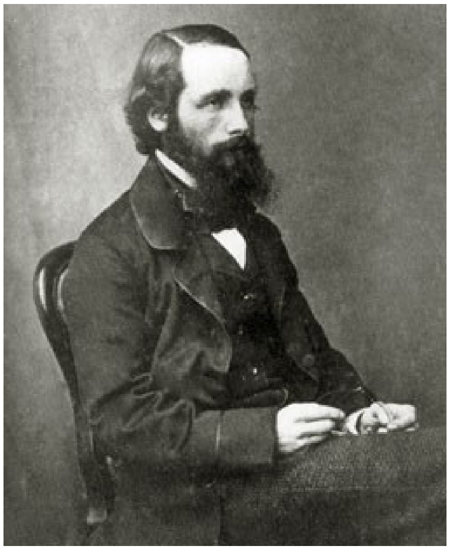
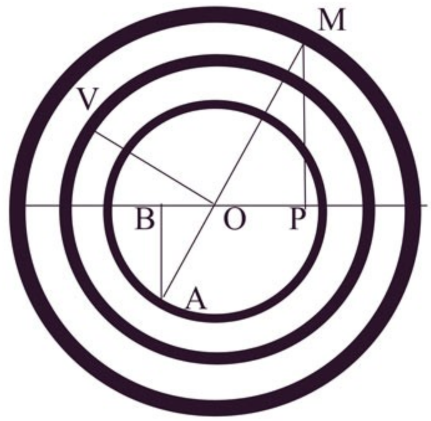
We Watch Maxwell Finesse an Equation



by Miles Mathis

I have shown all the other big names finessing equations, so here I will pick on Maxwell. In previous papers I have used one of Maxwell's simple formulations to help me discover the role of G in Newton's equations, so I am eternally grateful to him for that. However, I do not wish anyone to think that Maxwell is above reproach. He finessed equations with the best of them, and this is clear even before we get to this present analysis of mine. We should have known he continued the finesses before him—even if he hadn't added to them—since if he had not, the finesses would have ended with him. He would have fixed them all, or most of them. Instead, he continued the centuries' old trend before him of refudging the old fudges, continuing to prop them up and to set them in even harder stone.

We see this here with his derivation of the equation $a=v^2/r$. I take his math from his famous *Matter and Motion*, Article 113. He even provides a diagram, one different than any I have seen from other physicists.



Maxwell begins with a particle at M moving in a circle about O. Rather than draw the velocity of M as a tangent at M, he draws it as a parallel line VO, so that he can have the velocity intersect the origin, as you see. This makes the angle VOM 90 degrees. For the same reason, he lets the velocity—now "existing" at the point V—have a motion or velocity. This velocity of the velocity would again be at a tangent, but he moves the tangent to the origin, making it the line AO. That line is a vector that now stands for the acceleration of the point at M, you see. In this way, Maxwell is able to make the acceleration vector point at the center, supposedly explaining both the direction and magnitude of that acceleration.

As for the magnitude, he says that A is a "third proportional to the radius of the circle and the velocity of the body." What that means is that those three circles are drawn as a triune, so that A is to V as V is to M. In that case, the math works out to $AO=VO^2/MO$, which is our old friend $a=v^2/r$.

That is supposed to be some sort of proof, I guess, but it is circular, since he is assuming what he is supposed to be proving. He SET the numbers in triune. In other words, he said LET AO be a third proportional. He needed the numbers to be in truine, so he just fixed them that way. So his proof is proof of nothing. It is circular.

If you don't see what I mean, ask yourself why he drew VO that length. What if he drew VO equal to or greater than the radius? That would ruin his proof, wouldn't it? Is there some reason VO cannot be equal to or greater than the radius? No, and this means the equation has a limit in it that we don't find in Nature. Which means it is false.

You will say, "Haven't you corrected the orbital equation, just adding a 2 to it? Well, that equation must have a similar limit in it, right?" Yes, but I have assigned and applied that equation to a so-called orbital velocity, and we are studying a tangential velocity here. That is why Maxwell is doing tangents, you see. In other words, in my equation $a=v^2/2r$, the v stands for orbital velocity, which I have shown is not even a velocity. It is an acceleration to start with, and that equation can be broken down further. So I would never apply my orbital v equation to this problem or this diagram.

The equation I would use to explain the relationship of M to A here is this equation:

$$a = \sqrt{v_o^2 + r^2)} - r$$

In that equation, the velocity is the tangential velocity, so it matches Maxwell's initial assignments here. But there is no limit when v=r, and in that case a does not equal r. No, if v=r in my equation, then a=.414r.

You will say that the old equation has a solution when v=r, since in that case a also equals r. But that is not the problem. The problem is that Maxwell's triune breaks down when v=r, killing his "proof." This is even clearer if we let v be greater than r. In this case, a is also greater than v. So what, you say. The equations still works. But Maxwell's proof doesn't work, because AO is no longer pointing at O. If Maxwell follows his earlier manipulations, an acceleration vector that is larger than the radius must point away from the circle.

But of course his original manipulations to make AO point at O were also finessed. He started by moving the tangent at M down to its present position at VO. But why is it pointing at O? Not for any mechanical reason, but simply because Maxwell chose to do it that way. Moving the vector to that position has no mechanical or physical significance; or it it has, Maxwell certainly does not tell us what it is. He simply moves it there as a sort of trick. He say, "What if we move this here, and then move that there? Voila, we get the current equation." But according to current mechanics, the velocity does not point at O. If the fake positioning that Maxwell has done doesn't apply to the velocity vector, why should it apply to the acceleration vector? Notice he simply does the same thing to his acceleration vector that he did to his velocity vector. He moves it to suit himself. But with the velocity vector, the fact that it is pointing at O means nothing. So why does the fact that AO points at O mean anything? Truth is, it doesn't. It is just an outcome of his manipulations, which are physically meaningless. They are a mathematical trick and nothing more.

Notice that in my equation above, a=r when $v_o^2 = 3r^2$, or when $v_o = \sqrt{3}r$. So there is no triune. Maxwell manufactured the triune to match the current equation.

I will be asked how I can question this equation. Maybe I can question Maxwell's derivation, but we know the equation is right, don't we? No. In fact, we know the equation is wrong. I have shown how these false equations have already compromised orbital mechanics for centuries, and rocketry for decades. Since we can't directly measure either orbital velocity or tangential velocity, we have used $2\pi r/t$ for the velocity and tried to force the equations to work, but they don't. For one thing, $2\pi r/t$ is not a velocity. A curve over a time is not a velocity. For another thing, π isn't applicable here, since we are in a kinematic situation. I have shown that the transform between diameter and circumference is not π in kinematic situations, but 4. So the equation is compromised in several ways. It is then pushed by engineers to match data, and we are told the equation works when it doesn't. What this means is that the published numbers for velocity of the planets are wrong, for a start. The published numbers match the current equations, but they aren't correct. They seem to work only because they are consistent: they are all wrong by the same amount, so the problem doesn't come up in most situations. When it does come up, the equations fail, and the failure has to be hidden.

For a critique of other proofs of the equation $a=v^2/r$, you may go here, here and here. In the first link, I go line by line through the proofs of Newton and Feynman, as well as through a current textbook proof. In the second link, I expand on this earlier critique. In the third I deconstruct a proof posted on youtube.