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# JOHANNES KEPLER

## *and the third law*



*by Miles Mathis*

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I am spelling his name with two p's on purpose: that is the way he spelled it. I have never understood why the English have to misspell and mispronounce everything, seemingly on purpose. But that is another paper.

[In my recent paper on Newton](#), I mentioned Kepler, saying he was also spooky. Which is true. Notice how they try to make him look like a blond Gentile in the first portrait, which is the one most places lead with. While the second is far closer to what he really looked like. But in this paper I will lead with his good side. I led with Newton's good side for years before showing he had a darker side, so to be fair I should at least try to point out the many things Kepler got right.

I raked Newton over the coals last week, but remember, I have previously given him credit for some things even the mainstream doesn't give him credit for. Such as? Such as inventing the Lagrangian before Lagrange or anyone else did. See [this paper on perturbation theory](#), where I show this equation

$$F(r) = (-GM_0m_0/r^2) + m_0\omega^2r$$

That is Gutzwiller's recreation of Newton's Proposition 66 from the *Principia*. He treats that equation as a perturbative addition to the Newtonian field, but it is actually a pretty close pass to the Lagrangian, as you see. Even without any mechanics, Newton was within a mole's whisker of current math centuries ago. He just didn't know how to assign the terms. But since the mainstream still mis-assigns the terms in the Lagrangian, we can forgive Newton that. Also notice that Newton explicitly writes the

velocity as an angular or orbital velocity, contradicting the mainstream equation, which tags it as a linear velocity. This confirms my previous analyses, where I showed physics had lost the meaning of Newton's original variable assignments. So Newton was actually closer to my Unified Field Equation than contemporary physics is. Pretty impressive.

Well, we find the same thing from Kepler, who was—in many ways—more advanced theoretically than current physicists. If you ask a mainstream scientist now about Kepler, he will tell you Kepler showed orbits were elliptical rather than circular, and swept out equal areas in equal times, and all that. But other than that he will dismiss Kepler as someone just out of the dark ages, talking about perfect solids and the Sun's soul and junk like that. He will also likely dismiss as childish the fact that Kepler believed in God.

But if we read Kepler himself rather than books about him, and do so with an open mind, we find some astonishing things. Let's start with Part II of the *Epitome*, where Kepler is arguing against the need for intelligences to regulate the movement of the planets. Kepler argues that it is the Sun itself that causes the planets to travel in their orbits. By the spin of the Sun about its own axis, it imparts spin to the entire Solar System. You may think that is current theory, but it isn't. Given gravity only, there is no mechanism for linking the Sun's axial spin to the orbits of the planets. Gravity can only pull in. Which is why Newton proposed the planets had a prior sideways motion (innate tangential velocity) *before* being captured by the Sun. You will tell me there are also Solar disk theories, by which the planets were originally part of a Solar disk, which provided them with tangential velocity. But those theories also have no mechanism. Given currently understood and accepted theory, the planets could only be imparted that motion while attached physically to the Sun or disk. Once they separated, the mechanism was gone, and the planets should then be susceptible to other forces. Specifically, ellipses—being irregular—would be susceptible to varying gravitational forces from the Sun, which should force them to spiral down or be ejected. Mainstream theory has never solved this problem, except by ignoring it.

I will be told General Relativity solves it, but that is not true. GR is a *post hoc* math that is simply written to contain known velocities and accelerations, but it never attempts to explain them. Relativity is not concerned with answering mechanical or ontological questions; it is only concerned with matching tensor fields to data.

I will be told this is because current physicists don't wish to look stupid like Kepler, so they just dodge the question. True, except that if we look closer, Kepler doesn't look stupid at all. He looks amazingly prescient, at least on this question. Although the mainstream teaches you that Kepler was a precursor to Newton's gravity theory, he was also—and perhaps even moreso—a precursor to my charge field/unified field theory. For when we continue to read, we find that Kepler knows *how* the Sun imparts orbital motion from its own axial spin. Or *kind of* knows. First, he links the mechanism to the lodestone, so he draws a direct analogy to magnetism. Which we now know is correct. The way the lodestone works and the way the Sun works are very similar, and both are based on the charge field and its spin. Next, Kepler tells us that it is light moving between the Sun and planets that carries the force—which is again correct. He should say it is **charge**—light across the whole spectrum rather than just visible light—but it is amazing he has hit on the correct mechanism regardless. Especially considering that mainstream science *still* does not know this, 400 years later.

In section 3 [p. 55, *Prometheus* ed.], Kepler tells us how he knows the Sun must be causing the orbital motion of the planets:

1. Because it is apparent that insofar that any planet is more distant from the Sun than the rest, it moves the more slowly—so that the ratio of periodic times is the ratio of the  $3/2^{\text{th}}$  powers of the distances from the Sun.
2. Because the same thing is true of planets individually, which increase their velocity to the square of the distance.
3. Because the light and heat of the Sun are fit instruments for causing this motion.
4. Because the Sun rotates in the same direction as the planets do.

Pretty hard to argue with to this day, so why is it ignored? Because the mainstream doesn't think light is powerful enough to cause such motion. It treats all those things—and many other obvious clues—as coincidences. Due to huge theoretical and mathematical errors, mainstream physics has mis-weighed, or failed to weigh, the charge/light field/electromagnetic spectrum. They enter this problem with a zero-mass photon, which obviously doesn't help them assess the value of Kepler's theory, or mine. If they summed up from the known energy of the photon, instead of its mass, they could solve this easily, but they never have. How could they do that? Like this:

$$e = 1.602 \times 10^{-19} \text{ C}$$

$$1\text{C} = 2 \times 10^{-7} \text{ kg/s (see definition of Ampere to find this number in the mainstream)}$$

$$e = 3.204 \times 10^{-26} \text{ kg/s}$$

That is 19 proton masses per second for the fundamental charge, which means the proton is recycling a charge field every second that outweighs it by 19 times. Not only does that allow us to solve the dark matter problem, since dark matter also outweighs normal matter by 19 to 1, it allows us to solve the current problem. The Sun is mainly made up of protons, so it is also recycling a charge field every second that outweighs it by 19 times. That much charge is easily able to move planets about.

I will be told that amount of charge could not escape detection, but it is has. It has because that “weight” is photonic, and is therefore extremely tenuous as a matter of density. Most of the “weight” of photonic matter is in its velocity rather than its mass, because force is a function of both, and weight is a function of force. So light has a lot of force with very little mass, you see. In this way, it acts exactly like the “hidden sector” particles or WIMPs the mainstream stupidly keeps looking for.

The mainstream also misses this because charge cannot be weighed directly. Because it cannot be stopped or contained, there is no way to isolate it for any type of normal weighing. It can only be weighed *indirectly*, using equations we have long had.

Anyway, as it turns out, Kepler had deduced much of this even before writing the *Epitome* [1620] and even before the Sun had been proved to have spin. Galileo proved that with his sunspots in 1618, you know. The sunspots move sideways relative to the Earth, and we now know they move with the Sun, as it spins on its axis. But Kepler had predicted Solar spin (in the correct direction), based only on the orbits of the planets. See *Commentaries on Mars*, chapter 34.

Next, Kepler makes the very strange argument that the Sun has a soul, seeming to send all his previous comments into the garbage. However, if we keep reading, we see he is once again on the right track. For he denies that the Sun has intelligence or mind, and defines the soul he is talking about as a source of illumination and fire. Then he states “light itself [*per se*] is something akin to the soul: no less than the same thing was proved of heat in Book I”. So we see that he is talking about charge again here, which could indeed be called the soul of all matter, conscious and unconscious.

Next, Kepler says,

**The Solar body is. . . endowed with a soul which is the originator, the preserver, and the continuator.**

If we understand that soul to be the charge field, he is once again right, since the charge field is all those things and more.

When asked how the Sun can rotate the planets without hands to do so, he says,

**Instead of hands, there is the virtue of the body, which is emitted in straight lines throughout the whole amplitude of the world, and which—because it is a form of the body—rotates along with the Solar body like a very rapid vortex. . . .**

Again, this is mostly correct, since the Sun acts on the planets via charge emitted in straight lines out from its center. We now know the greater part of this charge is emitted near the Solar equator, which is why the planets reside in that area. However, the spin isn't imparted by a vortex, since no vortex (of that sort) can be created by discrete particles moving straight out from a center. The spin is imparted because charge is composed of photons, and all the photons are **spinning**. As the majority of them are spinning in the same way, due to having been recycled through the Sun, they will impart unequal spin to the planets, which causes all quanta in the planet to spin, which ends up causing the planet to spin, and which also causes the planet to move in one direction and not the other. And indeed, vortices *are* created at the planets as they *receive* this charge, since they take in this charge from the Sun at their poles. The spherical shape of the planets causes vortices to form at the poles, which is the main way axial spin is produced. Kepler doesn't recognize this subtlety, and so is forced to talk of a planet's "friendly" and "unfriendly" part to explain the cause of spin, but we can forgive him that. He didn't have an understanding of spin mechanics, but since mainstream physicists still have no understanding of it 400 years later, Kepler need not apologize.

Next, Kepler asks himself why all planets don't orbit on the same period. If the vortex is constant, the planets should all rotate with it. He answers that their varying inertias incline them to remain in the same place, and this inertia wars with the Sun's force. So he is saying their varying masses cause the different periods. In this, he is opposed to Newtonian and current theory, which deny that mass is involved in orbital velocity. By the equation  $a = v^2/r$ , the velocity is a function only of the radius and acceleration.

Remember, in Kepler's third law, there is no mass involved. And in Newton's derivation of the law, the masses cancel:

$$\begin{aligned}GM_0 m_0 / r^2 &= m_0 \omega^2 r \\ m r (2\pi/T)^2 &= G m M / r^2 \\ T^2 &= (4\pi^2 / G M) r^3 \\ \rightarrow T^2 &\sim r^3\end{aligned}$$

The smaller mass  $m$ , that of the planet, cancels, which we are told means the orbital period doesn't rely on it. It relies on the mass of the Sun  $M$ , but not on the mass of the planet.

However, Kepler was again correct, since he intuited the mass of the planet should have something to

do with its **reception of the charge field**. Although it cancels in the question of the orbital period, it doesn't cancel in many other problems, as I have shown in many papers, including my papers on [Bode's Law](#), [Axial Tilt](#), tides, [perturbation theory](#), [Galactic Rotation](#), and so on. To calculate the separation of planets, for instance, you have to include both the mass and density of the planets. Mass times density gives you a relative charge density (as recycled through the planet), and with that you can calculate many things the mainstream thinks are coincidence or accident.

And, just because mass cancels in the equations, doesn't mean the mass isn't involved in the Unified Field Equations, as we will see below. In fact, mass is in the equations *twice*, as we just saw. It can only cancel because it is in the equations twice. Meaning, Kepler was right again.

Next, we find that Kepler understands that light is not the same as matter. In other words, he has deduced that atomic or baryonic matter is not the same as photonic matter. However, he mistakenly thinks light is *immaterial*. But by this, he may mean only that it is not made of atoms or protons, which it is not. For him, matter was that which was made up of atoms, so if light was not made of atoms, it was, by definition, im-material. However, he is not clear on this, and many will interpret to him to mean light is *incorporeal*. Having no body. We (my readers and I) now know this is not true. Newton also knew this was not true, since he called his photon a *corpuscle*. A corpuscle must have a body, since that is what the word means. Both corporeal and corpuscle contain the word corp, which means body. So physics has actually devolved since the time of Newton: the mainstream has for a long time treated the photon not as a corpuscle, but as an incorporeal entity. If a thing is given no mass or radius, it is thereby incorporeal. The problem is, once you start theorizing with incorporeal entities, you are no longer doing physics, *by definition*. The word "physical" necessitates corporeal entities, since the two terms are mainly synonyms. Physics is the study of real bodies, not of ideas, abstractions, or airy concepts.

To work on real bodies, light must have a body. It must be physical and corporeal. This is why I treat the photon as an absolute necessity. Because the photon is so much smaller than the proton as a matter of radius, it can sometimes seem almost incorporeal in experiment. But logically, it must always be treated as real and corporeal. Even before absolute experimental proof, it should have been assumed to have a real radius and mass. Or, to put it another way, it is highly *irrational* to assume the photon has zero radius or mass. By its very nature, physics cannot proceed on such assumptions. 20<sup>th</sup> century physics *was not able* to proceed on that assumption, and that is why it crashed and burned while we were watching, especially on this question of light.

However, mainstream physics should now *know* light is corporeal, since thousands of experiments have told them so. Just as the most obvious example, see the photoelectric effect, where photons knock electrons out of substances. Incorporeal bodies cannot knock electrons out of anything. I will be told that waves are doing this, but waves cannot create themselves. Waves are always characteristics of particles, or fields of particles. Proposing that waves act on bodies is hugely illogical. You would have to give the waves body, which is circular. Once you give a wave a body, it is *by definition* a particle.

In the next sections [p. 60], we find Kepler knows about the inverse square law, since he explicitly tells us planets further away feel less power from the Sun, based on the increasing areas involved. He also says explicitly in the same section that the Sun's power to move the planets is **corporeal**. So he confirms what I said before: although light is not material, it IS corporeal. "Immaterial" for him must mean simply "not made of atoms". It does not mean incorporeal.

Unfortunately, in the very next section he backpedals, saying the power is not corporeal, and he seems

to be trying to separate the power as it comes from the Sun, from the power as it acts on the planets. He admits this power emanates from the Sun on “threads”, so it is not clear why it needs to change form in order to act on the planet. Keppler explicit admits his confusion, since he asks himself why light cannot be the power itself, answering that it probably cannot, though the explanation is unclear. He seems to want to separate charge from light for some reason, but it is difficult to figure out why he sees this as necessary. I suppose it is because when he sees light refracting through matter here on Earth, he cannot see it doing so in a manner that would make it also capable of moving that matter as a whole. Light that moves so easily through matter cannot also “take hold” of that matter, can it?

We now know that it can, because every “moving through” is also a “taking hold”. This is because the matter that is being moved through responds to the light in equal measure as the light responds to it. This was not obvious at the time of Keppler, since the experiments he is referring to were of weak light in very narrow circumstances. So the substance would respond very weakly, too weakly to be seen or measured. Besides, the substance was *already* responding to a strong ambient field of charge before the light ever hit it, though this is rarely recognized.

Basically, Keppler hasn't understood that light is recycled through nuclei, and even through protons, so he doesn't see how light and matter interact. But again this can't be held against him, since the mainstream still doesn't understand this.

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Now, let's see if you've been paying attention. I gave you a clue above, but odds are you missed it. I almost missed it myself.

In the first place, I gave you this perturbative equation from the *Principia*:

$$F(r) = (-GM_0m_0/r^2) + m_0\omega^2r$$

In the second place, I gave you this equation, which is Newton's derivation of Keppler's Third Law:

$$GM_0m_0/r^2 = m_0\omega^2r$$

Notice anything strange? It's the same equation, isn't it? If we let  $F(r) = 0$ , then the equations are equal. But in the first instance, the term  $m_0\omega^2r$  is a perturbative addition to gravity, while in the second equation, that same term is supposed to be the general centripetal force. Currently, the mainstream tells us that we are setting the centripetal force equation equal to the gravity equation, to find that  $T^2 \sim r^3$ . That is the current shortcut to Keppler's Third Law, though they borrowed it from Newton long ago. The mainstream is trying to explain to you where those powers come from, and why  $r$  to the power 3/2 is proportional to  $T$ .

That 3/2 power has been a big mystery since the time of Keppler, and even he was baffled by it. He pulled it from data, so he knew it was true, but when he tries to explain it in the *Epitome* [p. 65], he makes a hash of it. He says the weight of the planet is in the ratio of the 1/2 powers of the intervals. Meaning the same weight will feel less push the further out it is: which is just a restatement of the inverse square law, but substituting mass for strength of push or pull. So far so good. But he forgets to explain where the cube comes from.

And do you see what that means? It means that setting the centripetal force equal to the gravity force was not only just a trick—one that worked because the terms just happened to match—but it was a trick that **hid the right answer for centuries**. As I have told you before, gravity doesn't work like a centripetal force. So you can't set the two equal to one another. Or, you can, but if you do it is going to cover up what is really going on in the fields as a matter of fundamental mechanics. When they taught you in first-year physics that gravity was analogous to a toy being whirled on a string, they were wrong. Gravity, even at its simplest, is a dual or unified field, so it can't be compared to a centripetal force like that. [Newton's gravity equation always included the charge field, though that field was hidden until I unveiled it.](#) So if we want to understand Kepler's Third Law, we have to study not only the gravity field, we have to study the charge field. Curiously, Kepler was quite close to that understanding, which is what we are seeing here. He knew that the force was transmitted via light, and he was trying to find a way to express that field. So it is very interesting to see him applying the inverse square law to the mass in the field, instead of to the power from the Sun (gravity).

If you don't see what I mean, remember that in current equations, the inverse square law applies to the diminishing power of gravity. It is the force of gravity itself that decreases by the inverse square. In Kepler's terms, that means that the power of the Sun to cause motion decreases by the inverse square. But in his own explanation, he doesn't write it like that. He has the Sun's power decreasing by the distance, with no inverse square. But then the planet *responds* to the power (due to its mass) by the inverse square. The difference may seem subtle, but it is important because it makes gravity a function of mass. In the current equations, the force  $F$  of gravity is a function of mass; but the acceleration, and therefore the velocity of the planet in orbit, is *not* a function of mass. Gravity is an acceleration, not a force. Gravity *causes* a force, but in and of itself, gravity is an acceleration. The variable  $g$ , the gravity of the Earth, is an acceleration, not a force.

This clarifies itself somewhat in my unified field equations, where we have both solo gravity and charge. If we split the field into its constituents, we find that in the gravity part, mass plays no role in the equations, as with Newton. But in the charge part, we find mass must be included, and not only mass but *density*. This is because when light interacts with matter, you have to know the densities of both the light and the matter. [I have shown](#) that this means Newton's gravity equation was always unified, though the charge field in it was hidden. And it means that in many real-life situations, Newton's gravity equation, though unified, requires another degree of freedom and another term. That is how we get the Lagrangian and my Unified Field Equations.

What this means is that to correct the derivation of Kepler's Third Law, we can proceed in one of two ways. In the first, we can use Newton's perturbative equation above, using it as a sort of Lagrangian, but instead of tagging the second term as a perturbative correction, we will tag it as a charge correction. That immediately turns it into a Unified Field Equation (and in fact it looks almost exactly like my own UFE, with minor changes).

And so we have

$$F(r) = (-GM_0m_0/r^2) + m_0\omega^2r$$

As Kepler was trying to tell us with no success, that second term is telling us a charge field density relative to the matter field density. So we can understand it either as field drag caused by the energy of the photons; or as a scaling term, telling us how big the photon is acting in our field equations relative to the proton.

If you want to know where Kepler got closest to seeing that, go to p. 65 again, sec. 4, where he lists the four causes coming together in this problem. The 4<sup>th</sup> is “the bulk [moles] or space in which the matter to be transported is unrolled”. Meaning, I think, the charge density in the space through which the planet must move. So, as far as I can tell, he had many of the right ideas. But he didn't explain them very clearly, so when Newton soon came along and wrote over most of them, no one was the wiser. They hadn't understood what Kepler was up to to start with, so when Newton bulldozed him under, no one really cared. I doubt that anyone has read these sections closely since the time of Newton.

But I am glad I did, since Kepler's own words—along with all the previous work I have done on this question—allowed me to finally cut through this old derivation of his Third Law. I don't think anyone before me has seen this conflation of the two terms, one being the perturbative correction of Newton and the other being the centripetal force term. They happen to be written with the same variables, so no one realized a mistake had been made.

Remember, we saw almost [the same mistake made by Bohr centuries later](#), when he conflated two similar looking expressions of  $mv^2$ . And this is the [same mistake made in the Lagrangian](#) and Hamiltonian, where the mainstream still tags one of the terms as kinetic energy, simply because it has that same  $mv^2$  term in it.

So, you can comprehend the Third Law that way, just re-assigning terms, but using the original equations. You will say that you can't set  $F = 0$  in that case, since  $F$  isn't in fact zero in the equation. Yes, but you set  $F$  to zero only to look at the way the two terms change relative to one another. The current method sort of does that.

But to really understand the Third Law simply and intuitively, I find it best to ditch all that entirely and start over from scratch. **We then get the cube straight from the volume equation.** As you know, volume increases as the cube of the radius, so, conversely, the charge emitted by the Sun will decrease in power by the cube. You will say the orbit is 2D, but the interaction of the charge field with the planet is 3D. Both the Sun and the planet are 3D, and so is any path made by the planet in orbit, so the 3D volume equation must be used.

You will now remind me that [in previous papers](#) I have shown the unified field changes by the 4<sup>th</sup> power as it goes out from the Sun, not the 3<sup>rd</sup>. True, but that is a completely different problem, one that has nothing to do with the orbit. In that case we weren't tracking any planets' motions sideways to the field. Nor were we calculating or using volumes. We were comparing field strengths out versus field strengths in, on radial lines. And there, once again, we were doing unified field equations. The 4<sup>th</sup> power was found by treating the charge field as being inside the gravity field, *both* falling by the square. So we had the square of a square. But here, the 3<sup>rd</sup> power applies to the charge field by itself, before we look at anything else. Remember, like Kepler, we are looking at the force from the Sun that drives the planet *sideways*. Solo gravity doesn't ever drive anything sideways. It can only pull. So in this part of the analysis, we are looking only at how the solo charge field would fall off due to volume.

And again, amazingly, we find Kepler addressing this explicitly. See p. 64, where he says:

**Indeed the planetary bodies have not only those two dimensions (latitude and longitude), but also the third dimension of thickness or altitude, and they occupy this virtue clearly in three way: and exactly for that reason the prehensive, vehicular, and motor virtue of one planet is not one circle lacking latitude, but is constituted of an infinite number of circles as it were parallel in latitude**



**and in altitude.**

So he sees this is a matter of volume, though he is having trouble expressing precisely how.

But to get to  $3/2$ , something must be increasing by the square while charge is falling off by the cube. What could that be? In other words, less charge leads to a *larger*  $T$ , since the power to move is lower and the velocity is therefore slower. So we need something that makes the velocity faster and  $T$  smaller, by the square. The velocity would be faster if the mass fell off by the square, right? Less mass with the same force will go faster.

You will say, the mass can't "fall off". It is what it is. True, so let us say *effective* mass. The mass doesn't *act* as heavy as the distance from the Sun increases. But you see, that of course that is just a restatement of solo gravity. Mass at a distance doesn't feel as much force as nearer mass, so it *acts like* a body of lower mass, in the equations or in the field.

This is what Keppler tells us in the last paragraph of p. 65, though he has it strictly upside down. He says that more distant planets have *more* relative or effective mass, slowing them down. But in this case, Newton was right: the inverse square law of gravity is telling us that more distant planets have *less* relative mass or effective mass, because the force on them from the Sun has diminished. Their local mass is unchanged, but in their response to gravity, they *act as if* their mass has been reduced. Weight is determined by force, so it is their weight that has reduced. You may think of it this way: because they are pulled less toward the Sun, they are freer to move sideways, in the dual, unified field.

So, to gloss our solution, we have a unified field here, with charge as one part and solo gravity as the other. Solo gravity diminishes the effective mass or weight by the square as we move out from the Sun. This makes the planet easier to move, given the same force. Because it is easier to move, it achieves a greater velocity, which lowers  $T$ . In the charge part of the equation, charge density diminishes by the cube as we move out, following the greater volume. The greater volume of the orbit leads to a diminished field density. The diminished field density lowers the charge power to move, which diminishes the velocity, which leads to a larger  $T$ .

The only other question to answer is this one: why then  $3/2$  and not  $2/3$ ? Why does the charge field go on top? Because  $T$  is a time in the tangential/orbital direction, not the radial direction. Charge causes the motion in that direction, not gravity. Gravity cannot cause motion in the orbital direction. So charge goes in the numerator.

That is where the  $3/2^{\text{th}}$  power comes from in Keppler's Third Law. That is the Unified Field explanation of Keppler. I don't know if anyone in history has previously given that explanation, but if they have, I doubt they have tied it explicitly to the Unified Field.

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