

# Rado's Aether as a Rotating Spring

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Despite the long-accepted claims by mainstream physicists that the 1887 Michelson-Morley interferometer experiment 'proved' that an aether did not exist, based on its alleged 'null result,' 'dissident' physicists have long contended that it proved the opposite. Now there may be as many aether theories as there are dissident physicists who postulate an aether, some believing it to be fixed against absolute space, others that it can be 'dragged' by massive bodies such as Earth (and hence the alleged 'null result'), and some that believe it flows between 'sources' and 'sinks' throughout the universe. Some believe it comprises all matter and energy, with light just being one of its various manifestations. I know not whether there is an aether, but of all the theories so far encountered, one by Steven Rado appears to be quite plausible and complete. The goal here is to examine one aspect of Rado's theory for plausibility, via a fairly simple analogy of a rotating spring.

## 1. Introduction

There may be as many aether theories as there are 'dissident' physicists who believe in the aether. I have encountered some (for a synopsis of many of them see "Modern Scientific Theories of the Ancient Aether," <http://www.mountainman.com.au/aetherqr.htm>), with the more popular themes being as follows. (1) It is 'dragged' by massive bodies, such as the Earth (with or without corresponding rotation), thereby 'explaining' the 'null result' from the Michelson Morley interferometer experiment of 1887, e.g., Ref. [1]. (2) It 'flows' from 'sources' throughout the universe (in some cases, such as Ref. [2], the 'cosmic voids' themselves) into 'sinks' (such as the Earth [2]). (3) It consists of electric charges of the same polarity or 'particles' of opposite polarity, the first immersed in a uniform continuum of charge of opposite polarity (Ref [3]), the second forming a homogeneous space where the particles are strongly attracted to one another but move free of any friction (Ref. [4]).

## 2. Steven Rado's Aether

Perhaps one of the most developed theories is that of Steven Rado, for whom the "Aether is taken as an all-pervading ideal gas in the ultra-microscopic order of magnitude, and we call its constituents the Aethrons, which are conceptually equivalent to the atoms of an ideal gas; geometrical points of impenetrability to one another; ... the ultimate units of motion ... [without any] need to possess any internal structure that could be the subject of further speculation. Hence, if Aether is accepted as an ideal gas, all details, concepts, results and conclusions of ... Experiments in the ideal gas are directly transposable to this universal medium and expandable to the whole of space which it pervades ...

"[Q]uantitative analysis of the electromagnetic waves can supply ... information about the basic characteristics of the Aether. The highest known frequency of electromagnetic waves presents itself in the form of gamma rays, ranging from  $10^{18}$  to  $5 \times 10^{24}$ /sec. The corresponding wavelength is approximately  $6 \times 10^{-15}$  cm. If the shortest possible wavelength of sound was determined by the shortest possible average distance of the vibrating atoms of steel, then the approximate average distance between the Aethrons in the Aether should be  $6 \times 10^{-15}$  cm. It is assumed that the size of the Aethrons is negligible compared to their distances apart and therefore ... the density of the Aether ... turns out [to be] ... 6,000,000 times closer to one another than the atoms of steel; thus, as a medium, Aether is 6,000,000 times denser than steel. It is certainly quite inconceivable and makes it fully understandable why classical scientists could not imagine the frictionless translator motion of the planets through this medium ... [T]he planets and other heavenly bodies do not perform translator motions relative to the Aether, but they are rather carried by the medium in their eternal journey." [5]

I do not know whether or not there is an aether. However, if an aether exists, then Rado's concept seems to be one of the more plausible, and certainly complete, ones, worthy of examination, at least to a limited extent. It is in this spirit that the following analysis is performed.

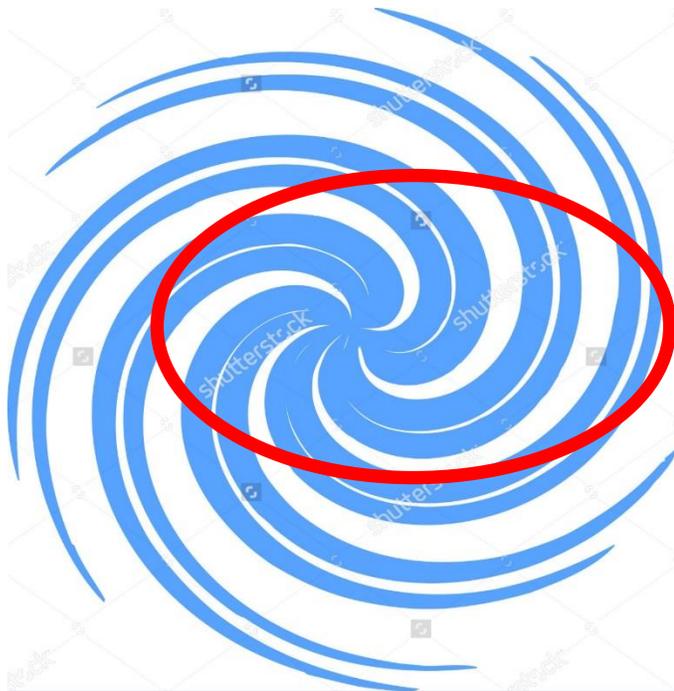
## 3. The 'Sink Vortex'

One of the earliest theories regarding the nature of an aether was that of Rene Descartes who "hypothesized that the ether, a very dense medium of very small particles, pervaded all space. He reasoned that no bodies of matter could act upon one another through empty space. This ether medium, he wrote, transmitted forces from one object to another by collisions of the particles. Descartes' universe was a purely mechanical universe—he believed all phenomena to be the result of collisions of matter. Using his ether model, Descartes believed the planets are pushed along their orbits by a cosmologically-sized vortex motion of the ether. In his 'Solar Vortex Theory of Gravity' he theorized that the Earth is located within an ether vortex whose center was the sun. The rotating motion of the sun's ether-vortex pushed earth in such a way as to make it orbit it." [6]

Borrowing from this concept, Rado theorizes that "[i]n analyzing an orbit ... of a body in free fall, Newton's theory of universal gravitation completely separates the forces responsible for the vertical [radially inward] and horizontal [tangentially circular] components of the motion ... [T]here is no such thing as a permanent three-dimensional *radial flow* into a sink, but it is always accompanied by rotation just like gravitation itself. Consider two common earthly examples of rotational systems: the great storms, like the cyclones and tornados, and the miniature rotating system of the draining water in the kitchen sink ... [For such a circular vortex,] it follows that no closed vortex rings could develop, ... but the paths of the particles in the fluid are circles of continuously diminishing radii. Thus, each small portion of the medium moves on a separate spiral channel with increasing tangential velocity as it approaches the center. Eventually, all the particles caught in such a vortex will be consumed by the sink ... In fluid dynamics, such a rotating system is called a *spiral vortex*. In this analogy it is more clarifying to use the name *sink vortex*." [5] Figure 1 illustrates this concept.

Rado continues: "As shown in Figure [1]..., by superimposing of an elliptical orbit on the spiraling vortex for both planetary and electronic permanent orbits, there must be a periodical de-railing from and on-railing to the spiral channels of the vortexting medium. During these events, the planets and electrons perform periodical accelerations and decelerations relative to the Aether ... [that] represent motion ... relative to the general flow pattern of the vortex, therefore causing periodical density variations, or compression pulses in the medium ...

There is a natural kinematic reason for the de-railing of the planet or the particle from the spiral channels of the vortex during its elliptical orbits ... The theory of the gravitational sink-vortex includes a *kinematic necessity* for elliptical orbits and the consequential periodical variations of the orbital velocity ... [A] particle having inertial mass that is caught in the vortex cannot follow the constantly changing direction of the spiral channels ... [T]he particle experiences an Aether resistance which, in turn, causes its deceleration ... [T]he decelerating particle will eventually reach a zone of the spiral where its speed and direction are equalized with those of the local channels. From this stage on the procedure of acceleration starts all over again ... [T]he criterion for a permanent elliptical orbit is not only determined by the masses of the particles, and their distances and tangential velocities relative to one another, but also by the delicate exchange of energy between the orbiting particle and the vortexing medium.” [5]

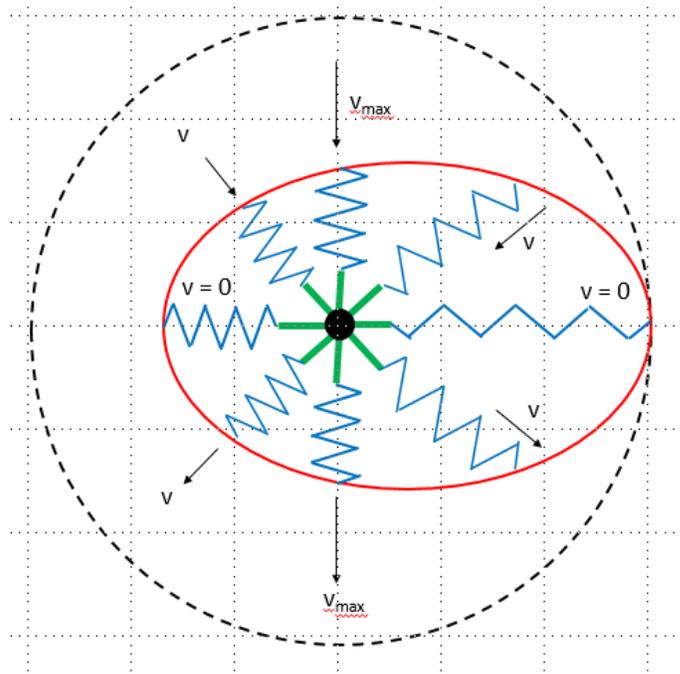


**FIGURE 1.** Representation of Rado's 'Sink Vortex,' with Superimposed Elliptical Orbit of Planet or Particle

(<http://www.shutterstock.com/pic-337632/stock-vector-a-vector-whirlpool-spiral-shape.html>)

#### 4. Analogy to a Rotating Spring?

Rado's Figure 1 appears to be reproducible via the concept of a rotating spring, as shown in Figure 2. One of the foci for an elliptical orbit is shown as the black dot. If a rigid rod extended from the focus to its end, upon rotation over 360 degrees, it would trace out a circle (black dashed line). Now, if much of that rigid rod were replaced by a spring (blue wavy line, with solid green line still representing the remnant of the rigid rod), and the spring were stretched to its maximum length at the start and then released, in the process of rotating over the same 360 degrees, an elliptical trace (solid red line) might be expected as the spring contracts from full extension (at zero degrees) to equilibrium (at 90 degrees) to full compression (at 180 degrees), back to equilibrium (at 270 degrees), then finally back to full extension (at 360 degrees [same as zero degrees]). The speed 'v' of the end of the spring would start at zero (0 degrees), increase until peaking at equilibrium (90 degrees), decrease back to zero (180 degrees), increase again to maximum (270 degrees), the finally decrease back to zero (360 [zero] degrees).



**FIGURE 2.** Rotating Spring Analogy to Elliptical Orbit Superimposed on Rado's 'Sink Vortex'

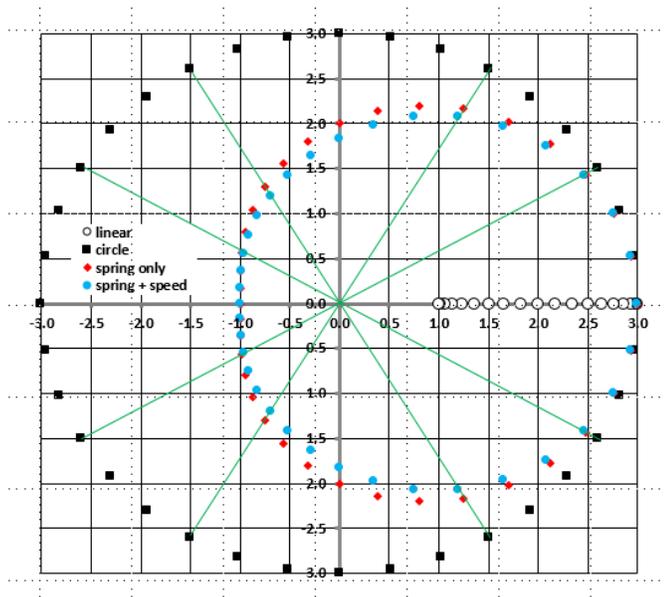
Conceptually, it seems fairly straightforward as to how a rotating spring might simulate an elliptical orbit. However, if analyzed mathematically, does this analogy still hold? To investigate this, I performed a mathematical exercise where I rotated a spring over 360 degrees while it underwent simple harmonic oscillation between a maximum (fully extended) and minimum (fully compressed) length. Figure 3 displays the results.

The **open dots** along the x-axis from 1.0 to 3.0 represent the positions of the non-rotating spring as it oscillates between its maximum (fully extended) and minimum (fully compressed) lengths via simple sinusoidal harmonic motion. Now, if rotated over 360 degrees, its end traces out the pseudo-ellipse shown by the **red diamonds**. If we assume that the speed of the spring also has an effect (dampening, i.e., slowing due to aether resistance) as it oscillates (minimum speed at zero, 180 and 360 degrees; maximum speed at 90 and 270 degrees [see Figure 2]), some additional "flattening" results, as shown by the **blue dots**. (We assume that the speed effect is a decrease from the "spring only" position by the product of the difference in positions between two increments [a measure of speed] and the sine of the incremental angle). The change from a circle (**black squares**) to pseudo-ellipses when the spring is rotated "rigidly" vs. "with simple harmonic oscillation" (without and with speed effect) is evident. The **green lines** (and x- and y-axes) map out this effect for every 30-degree increment.

#### 5. Conclusion

The 'pseudo-ellipses' generated from the mathematical analysis shown in Figure 3 resemble, but do not exactly align, with actual ellipses, which is not surprising given the simplicity of the analysis and lack of any geometric 'scaling' factors. Nonetheless, it at least appears feasible that the elliptical orbit postulated by Rado as evolving from an aethereal 'sink vortex' is feasible. Speculating on what might physically cause the pseudo-elliptical behavior, the first thought is that aethereal density might play a role. When the particle starts at full spring extension (zero degrees), the 'inward' pulling force is a maximum. As the spring rotates, the particle gains speed as this force pulls inward. However, since the pulling force decreases as the spring

'unextends,' the speed eventually reaches a maximum at the spring's equilibrium point, where there is neither a pulling or pushing force (90 degrees).



**FIGURE 3. Mathematical Representation of Rotating Spring Analogy, Including Effect Based on Spring Speed**

Because of momentum, the spring continues to compress inward although it now encounters an 'outward' pushing force as it compresses to its minimum length. The speed therefore decreases until reaching zero when the spring is fully compressed at its minimum length (180 degrees), at which point the outward pushing force is maximum and starts 're-extending' the spring as it continues to rotate. The cycle repeats, with the speed reaching a maximum (now outward) at 270 degrees as the force drops to zero at the spring's equilibrium point, then continues until the spring is again fully extended at 360 degrees, where the speed is again zero and the force is now inward at its maximum strength.

Rado attributes the elliptical behavior to "a natural kinematic reason for the de-railing of the planet or the particle from the spiral channels of the vortex during its elliptical orbits." In my rotating spring analogy. It appears that the 'pulling' and 'pushing' forces as represented by the spring might arise from changes in the aether 'density' as the particle travels from the region of lowest density (full spring extension) to highest density (full spring compression), with the change in speed allowing it to be 'pulled back in' from its point of maximum extension rather than continue forever outward into regions of even lower aethereal density.

While neither Rado's theory nor my simple analogy can be proven, the goal here was merely to examine Rado's theory using a fairly simple analogy to ascertain whether or not it might be at least plausible. It would appear to be so, from both a qualitative (Figure 2) and quantitative (Figure 3) perspective, at least to some level of approximation.

## 5. References

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