THE MORGAN EXPERIMENT:

First Independent Confirmation of Wallace's Results?!

Kedrick F. Brown, December 16, 1999

About two years ago, Harvey **Morgan** published the results of an **experiment** which he claimed demonstrated the existence of a gravitomagnetic type field [1]. I quote from his article:

" A mechanical experiment confirmed that momentum is indeed a field phenomena. A 2 pound lead flywheel was mounted on the shaft of a small, very high speed (26,500 RPM advertised) electric motor. Another flywheel was mounted on a ball-bearing shaft aligned with the motor shaft. The two flywheel's parallel faces were separated by about 1/16"…When the motor was energized, it accelerated the lead flywheel towards it's top rated speed. The other flywheel, in response to the changing angular velocity and momentum of the lead flywheel, started turning briskly - in the opposite direction! The changing momentum field of the lead flywheel induced a torque in the other flywheel across an airgap. Newtonian mechanics does not predict that reaction.

When the electric motor was turned off before reaching top speed, the other flywheel stopped turning . It then started turning slowly in the same direction as the lead flywheel, urged by the collapsing momentum field and the air coupling between flywheels. "

Clearly in the above quote, what **Morgan** refers to as momentum is in fact more specifically angular momentum. It is well known in physics that angular momentum generates a field known as the gravitomagnetic field (a gravitational version of the magnetic field that is created by and acts on angular momentum - as opposed to the regular magnetic field, which is created by and acts on magnetic moment). There is even experimental evidence for the existence of this field, which is predicted by general relativity [2]. However, the minuteness of the gravitational coupling constant, which is a negligible 10^{-26} m/kg, means that it should be all but impossible to observe any nontrivial gravitomagnetic effects in a laboratory. Because of this, most experiments to detect the existence of the gravitational field are astrophysics type experiments. This indicates that if Morgan's results are correct, and he did in fact observe gravitomagnetic effects in a laboratory, they are perhaps some of the most important physics results in all of history.

This is where I realized that Morgan's experiment might be connected to Wallace's experiments [3-5] - i.e. because I came to the same conclusion about the gravitomagnetic field Wallace claimed to have observed in the laboratory.

Morgan basically seems to have observed a gravitomagnetic version of something called the Einstein-deHaas effect, in which a freely suspended body begins to rotate on being magnetized [6]. The Einstein-deHaas effect is the inverse of Barnett's effect, in which uniform rotation of a body causes a magnetization which is proportional to its angular velocity [6]. In the gravitational Einstein-deHaas effect, a freely suspended body would begin to rotate on being spin polarized by a gravitomagnetic field.

In other words, the gravitomagnetic field created by the powered flywheel in Morgan's **experiment** caused the test flywheel to become spin polarized, which in turn caused its rotation.

This spin polarization must be compensated for by an opposite rotation of the test flywheel (due to conservation of angular momentum). More specifically, any change in the spin polarization of the test flywheel (caused by the gravitomagnetic field of the powered flywheel) must be compensated for by an opposite rotation of the test flywheel. Reference [7] explains this phenomenon for magnetic fields and test bodies.

In Wallace's experiments [3-5], he observed in the laboratory a gravitomagnetic type field which he named the "kinemassic" field. The kinemassic field is once again not the orthodox gravitomagnetic field of general relativity. Here's what it is in Wallace's own words [3]:

" In the practice of the present invention, it has been found that when bodies composed of certain material are placed in relative motion with respect to one another there is generated an energy field therein not heretofore observed. This field is not electromagnetic in nature, being by theoretical prediction related to the gravitational coupling of relatively moving bodies.

The initial evidence indicates that this nonelectromagnetic field is generated as a result of the relative motion of bodies constituted of elements whose nuclei are characterized by half integral "spin" values, the spin of the nucleus being associated with the net angular momentum of the nucleons thereof. "

In other words, the kinemassic field is a field that can only be generated by the **RELATIVE** (i.e. as opposed to the absolute) motion of bodies composed **specifically** of half-integral spin nuclei. Wallace goes on to say that [3]:

" The [kinemassic] field strength is apparently a function of the density of spin nuclei material comprising the field circuit members. Whereas the permeability in magnetic field theory is a function of the density of unpaired electrons, the kinemassic permeability is a function of the density of spin nuclei and the measure of magnitude of their half integral spin values. "

"Spin nuclei" in the above quote refers to nuclei having half-integral spin. Wallace later goes on to say that Bismuth is the ideal material for his **experiment**, which seems to indicate that "density of spin nuclei" in the above quote refers to the nucleon density of a nucleus and not the bulk mass density of a material. Bismuth is the stable element with the highest number of nucleons (i.e. 209) in its nucleus. It is also 100% naturally abundant.

Lead, the material used by **Morgan** in his **experiment**, has a half-integral spin isotope (22.1% abundant) that has 207 nucleons in its nucleus, which is very close to Bismuth. **Morgan** observed his results across an airgap of 1/16", which is 160 times wider than the 10 micron airgap used in the Wallace experiments. However, Wallace used brass in his experiments, which contains mostly Copper - which has two natural isotopes with 63 and 65 nucleons respectively (much less than Lead-207). So basically Morgan's larger airgap could be explained by the fact that he likely used a much better material to generate the kinemassic field.

The speed of the rotor in Wallace's main experiments was 28,000 RPM. The maximum speed of Morgan's rotor was 26,500 RPM (95% of Wallace's). In Wallace's words [3]:

" …when the generator wheel is made to spin at rates upward of 10 or 20 thousand revolutions per minute, effective polarization of spin nuclei within the wheel structure gradually occurs. "

Spinning particles within a rotating body must **necessarily** have their spins polarized by Barnett's effect (i.e. a rotating body of spin nuclei material will have its nuclear spins polarized due to this

rotation). So in Morgan's **experiment**, one flywheel is nuclear spin polarized by rotation. Since it is rotating **relative** to another flywheel at close proximity, a kinemassic field must be generated between the two (according to Wallace's results). This kinemassic field causes the spin polarization of the stationary flywheel - which causes it to rotate in direction(s) dictated by conservation of angular momentum, as explained earlier (the Einstein-deHaas effect).

So to summarize, Morgan's experiment seems to be the first independent confirmation on record of the existence of Wallace's kinemassic field!!! He used a half-integral spin nuclei material (Lead) that is apparently better for demonstrating the kinemassic field due to its higher nucleon number than what Wallace used (mostly Copper) and so he was able to use airgaps about 160 times wider and did not have to confine the field to a closed circuit. He used high angular velocity (95% of Wallace's) which caused a strong spin polarization of the powered flywheel. Morgan's **experiment** seems to be genuine proof of the existence of Wallace's kinemassic field, and is a much simpler way to test for its existence than Wallace's method. Since it demonstrates that Lead is a superior material for demonstrating kinemassic fields, it seems clear that this is what should be used as well in gravitational experiments related to the kinemassic field (such as [5]), as it is durable and not prohibitively expensive.

Sources Used:

[1] H. **Morgan**, IEEE AES Systems Magazine, p. 5 (January 1998)

[2] http://science.msfc.nasa.gov/newhome/headlines/ast06nov97_1.htm

[3] H. W. Wallace, U. S. Patent 3,626,605 (1971)

[4] H. W. Wallace, U. S. Patent 3,626,606 (1971)

[5] H. W. Wallace, U. S. Patent 3,823,570 (1974)

[6] L. D. Landau and E. M Lifshitz, "Electrodynamics of Continous Media," (Pergamon, Oxford, 1960), pp. 144-145.

[7] R. P. Feynman et al., "The Feynman Lectures on Physics," vol. 2 (Addison-Wesley, 1964), p. 37-5.