AN EXPERIMENTAL DISPROOF OF SPECIAL RELATIVITY THEORY (Unipolar Induction)

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Here is an experiment that invalidates Relativistic Electrodynamics. To facilitate understanding it will be presented in two parts, each one in turn subdivided into a rotational case and a translational one.

Part 1: SCHEMATIC RESULTS

A)Rotational Case

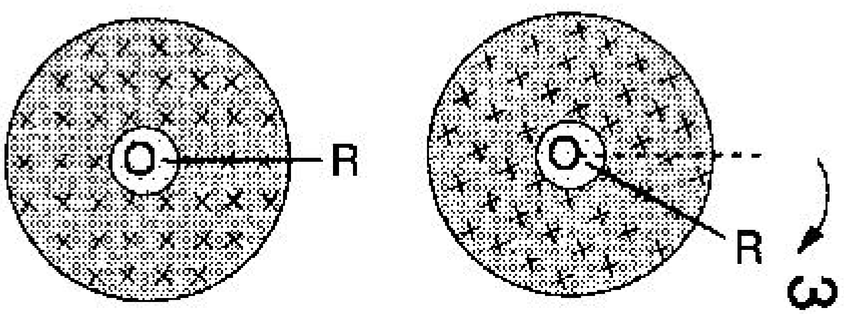

FIGURE 1

A radial conductor **OR** rotates TOGETHER with a cylindrical (or ring) magnet with speed omega. The **B** field enters the paper, as indicated by the **X**'s (Fig. 1)

- - - In spite of the absence of relative motion between magnet and wire a potential difference is induced between **0** and **R** due to the ABSOLUTE ROTATION of the system (Ref. 1). This contradicts Einstein's statement at the beginning of his 1905 paper. It does not violate Special Relativity, however, since this theory is not applicable to rotating systems.

- - - Relativists like Schiff resort to the General Theory, and attribute the induced voltage to the counter-rotation of the distant Galaxies of the Universe which warp space/time (Ref. 2). We do not believe in such a mystified warping. We reason as follows:

B)Translational Case

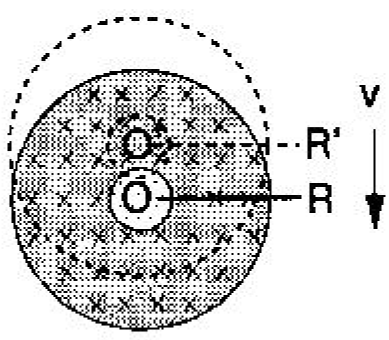

FIGURE 2

If instead of rotating the system we move it with linear speed **V** (Fig.2), then there is NO INDUCTION along **OR**. Why?

The **B** field is the same; the speeds also are similar, and no relative motion exists as in Figure 1. Why the difference?

It seems that the Galaxies have a very "fine eye", distinguishing a minute angular oscillation from a minute linear translation, at light years away... and instantly! This sounds like science fiction. Let us go BACK TO REALITY.

IN FIGURE 1 ALL THE VELOCITIES ARE PARALLEL, THAT IS, TANGENTIAL TO THE MAGNETIC EDGES

IN FIGURE 2 MOST OF THE VELOCITIES HAVE COMPONENTS PERPENDICULAR TO THOSE EDGES.

AS A RESULT, IN FIGURE 2 THE EDGES PRODUCE MAGNETIC "STORMS" BY MOTION IN SPACE, (an absolute effect), WHICH ARE EQUIVALENT TO NEGATIVE (**VxB**) EFFECTS. THE LATTER CANCEL THE POSITIVE (**VxB**) FIELDS THUS YIELDING ZERO NET INDUCTION. (All this can be proven using vector algebra)

*** P r e d i c t i o n ***

An experiment could be designed that, avoiding all transversal edges, might show induction without relative motion between the local magnet and the wire, EVEN IN THE CASE OF RECTILINEAR (INERTIAL) MOTION.

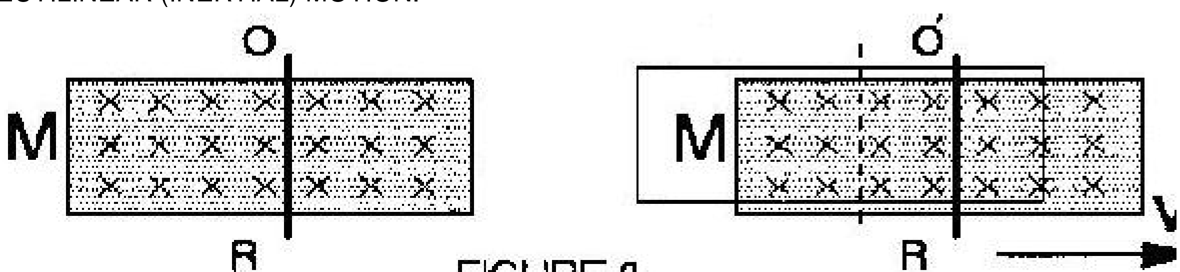

FIGURE 3

Consider the rectangular magnet **M** of Fig. 3, (magnetized perpendicularly to the paper), and the transversal conductor **OR**. If both move with linear velocity **V** as indicated by the arrow, NO INDUCTION occurs along **OR**. This is in agreement with the equations of Relativistic Electrodynamics. If **V** is accelerated, still NO INDUCTION results. (Speed change is irrelevant)

Meaningless as it might appear consider now the experiment of Fig. 4:

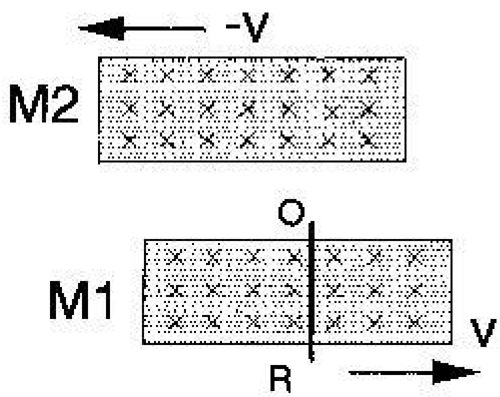

FIGURE 4

This is as in Fig. 3, but with an additional magnet **M2** moving in the opposite direction. --Again, practically NO INDUCTION occurs along **OR**, especially if the return fields of the magnets do not touch" each other.

NOW COMES THE CRUCIAL STEP:

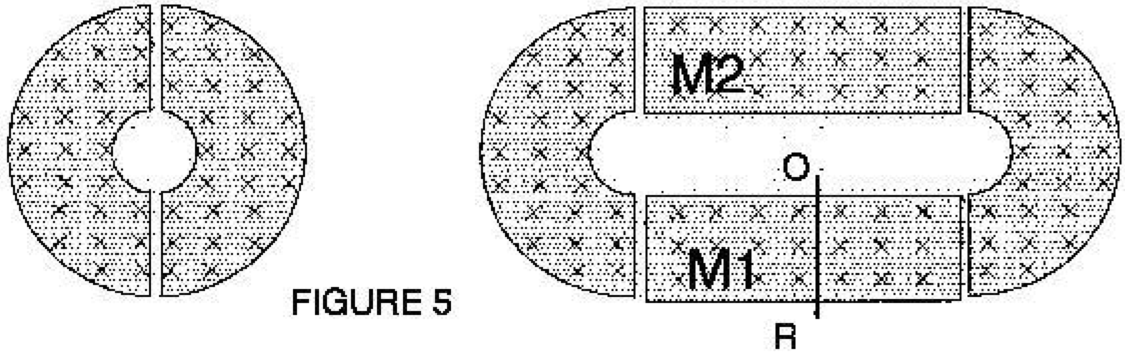

FIGURE 5

Take a ring magnet similar to the one in Figure 1 and cut it in halves, (Fig. 5). Separate them and insert the rectangular magnets **M2** and **MI** with conductor **OR** fixed to the latter.

In this way all transversal edges are avoided, making a continuous magnetic system. If small gaps are left as shown in Fig. 5 then **MI** and **M2** can be slightly displaced as shown in Fig. 6. Then AN INDUCTION OCCURS ALONG **OR**!!!

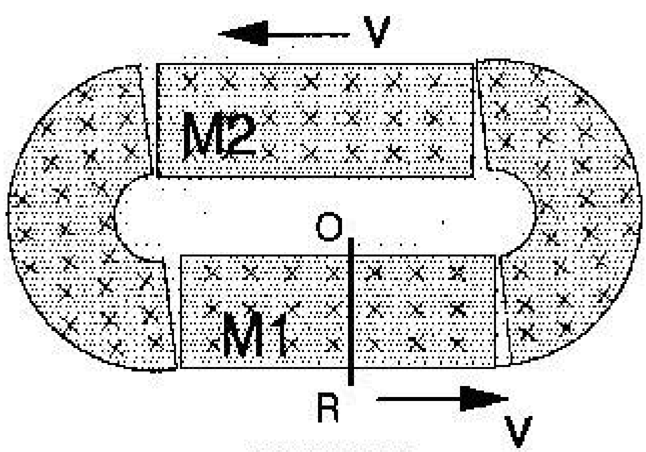

FIGURE 6

BUT SPECIAL RELATIVITY PREDICTS NO INDUCTION just as in Figure 4. Hence, the Theory FAILS! And General Relativity cannot come to the rescue." Both fail to account for the edge effect "at a distance".

Part II: EXPERIMENTAL DETAILS

Perhaps the reader is wondering if I made all the experiments described in Part I. How can one measure a voltage in an isolated piece of wire? In principle this is possible, by inserting electrometers at the midpoint of the wire. But it is very difficult. What I did was to use complete circuits in which all sections, except **OR**, were shielded from the magnetic field. For this purpose I modified Faraday's debated "unipolar inductor' of 1832. In what follows I will describe this modification, basic for all my experiments.

Faraday's Unipolar Inductor

A) Rotational Case

Rotating a copper disk above a

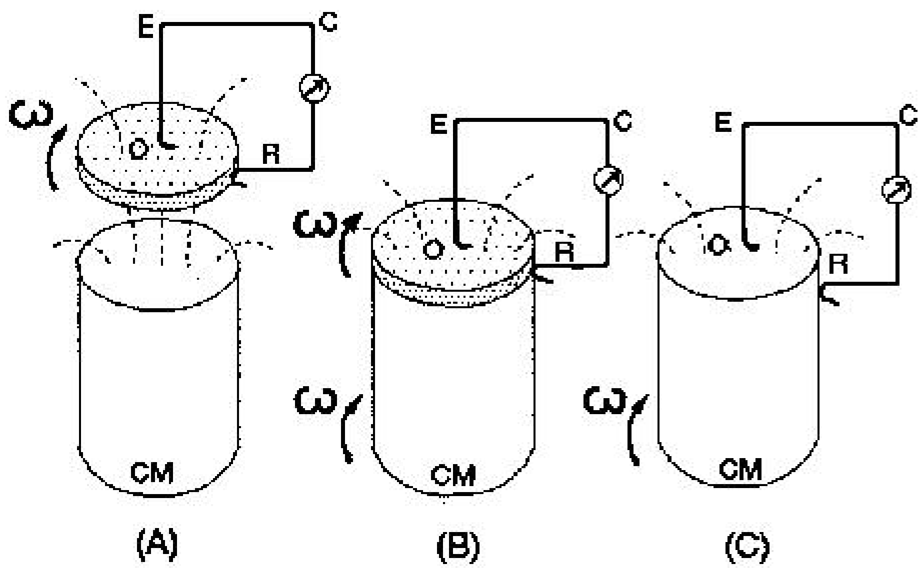

FIGURE 7

magnet (Fig. 7A) Faraday induced a current in **OECR**. Rotating disk AND magnet together he obtained the same result, (Fig. 7B) and also removing the disk altogether (Fig. 7C). WHERE is the seat of induction in the latter case? Along **OR**, within the magnet? Or along **ECR**?

To answer this hotly debated question consider the following modification:

Müller's modification to the Unipolar Inductor

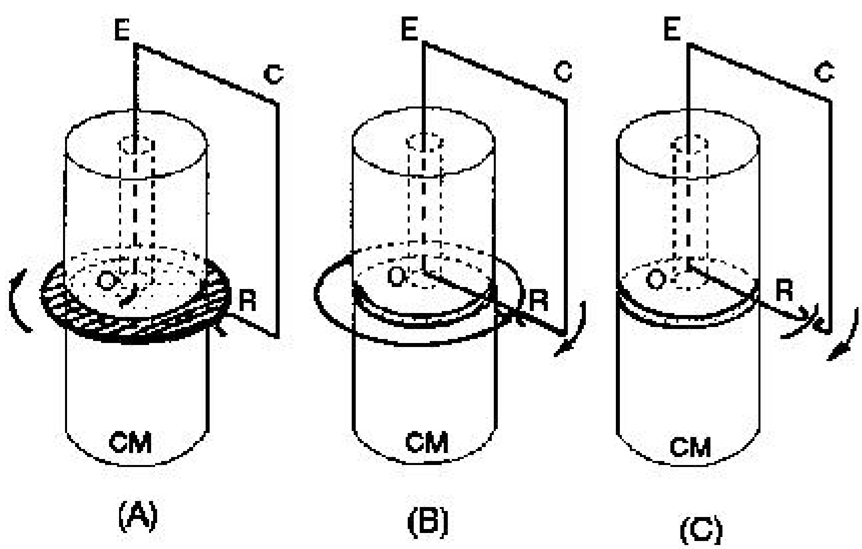

FIGURE 8

- - - Fig. 8 shows how the disk was set between two magnets; then substituted by a collector ring and finally eliminated to have a complete filamentary circuit, **OECR**. At **R** a sliding contact allowed rotating **OR** or **CR** independently of each other. The cylindrical magnet **CM** can also rotate about its axis, **OE**.

Next, an iron plate **PP'** was inserted as shown in Fig. 9 so that **ECR** is shielded from the magnetic lines. Only **OR** "touches" the lines in the gap between the magnets. A mercury cup can substitute for the sliding contact at **R**.

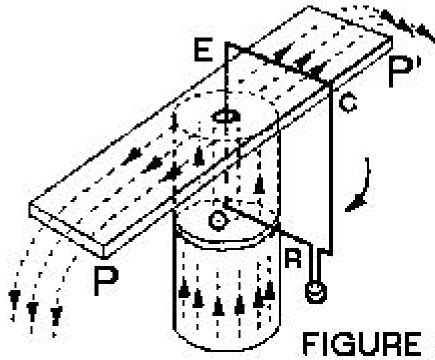

FIGURE 9

Finally, more plates were added to confine the return magnetic field within a rectangular yoke, as shown in Fig. 10. (Rotations were limited to small angles).

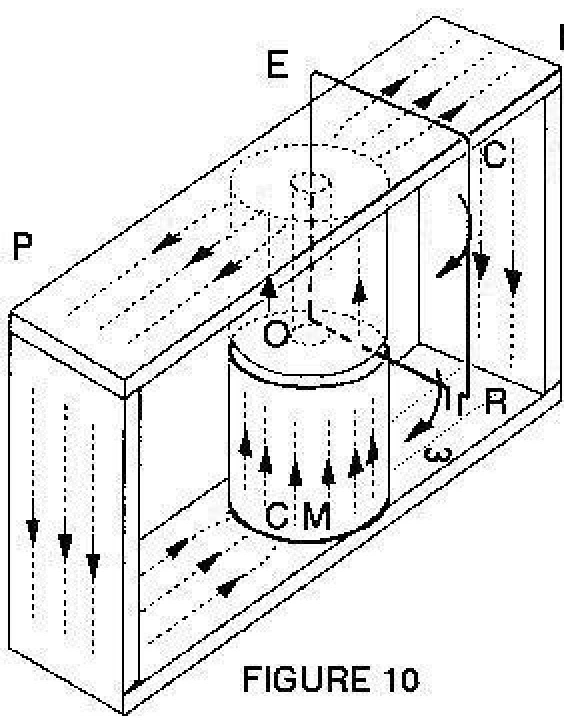

FIGURE 10

TABLE I

INDUCED VOLTAGES IN FIGURE 10

CASE #	OR	ECR	MAGNET C M	OBSERVED INDUCTION
1	0	0	0	NONE
2	ω	0	0	+E
3	0	ω	0	NONE
4	0	0	ω	NONE
5	ω	ω	0	+E
6	ω	0	ω	+E
7	0	ω	ω	NONE
8	ω	ω	ω	+E

With this system 8 cases of relative motion can be studied as indicated in TABLE 1, where **omega** means rotation and **0** means rest. A voltage **+E** or **-E** was induced in cases 2, 5, 6 and 8, that is, only when **OR** moved, regardless of its motion relative to the cylindrical magnet **CM**. (The yoke **PP'** never moved). In cases 6 and 8, there was no relative motion between **OR** and **CM**. Yet, a positive **E** occurred. The reciprocal cases, 3 and 1 respectively, both gave zero **E**, violating the expected relativistic equivalence of relative motions. In particular, case 8 is totally unexplainable by the Lorentz transformation of the fields. Serious relativists like Panofsky and

Phillips (Ref. 1) accept that Special Relativity fails in this case, and refer to Schiff (Ref. 2) who in turn uses General Relativity and brings the "galaxies" into the problem. But this is unbelievable and useless as explained in PART 1. The rectilinear variation of Faraday's inductor proves the point. Practical details follow.

B) The Translational Case:

Müller's Linear Unipolar Inductor

The "racetrack" magnets of Figs. 5 and 6 were piled up forming four layers as shown in Fig. 11. A gap between the two lower layers allowed inserting the insulated rectangular loop **OECR**. A mercury cup at **R** (not shown) allows independent rectilinear motion of **OR**, **ECR** and magnets **M** as indicated by the double arrow **V**.

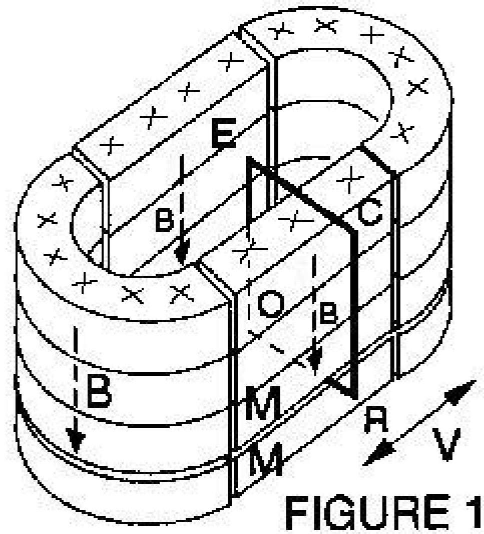

FIGURE 11

Finally, add plates **PP'** to confine the magnetic field totally within an iron yoke, as shown in Fig. 12. (Motions are limited to small linear displacements).

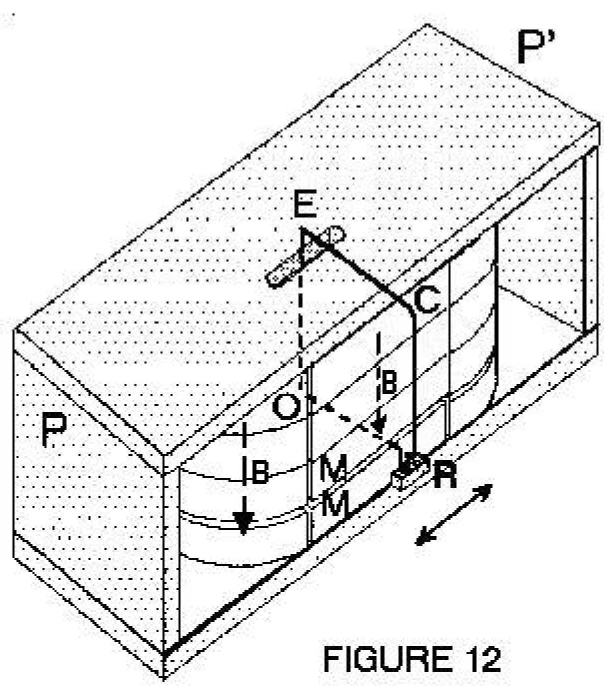

FIGURE 12

TABLE II

INDUCED VOLTAGES IN FIGURE 12

CASE #	OR	ECR	MAGNET M M	OBSERVED INDUCTION
1	0	0	0	NONE
2	V	0	0	+E
3	0	V	0	NONE
4	0	0	V	NONE
5	V	V	0	+E
6	V	0	V	+E
7	0	V	V	NONE
8	V	V	V	+E

- - The induction results, for the various cases of relative motion, are given in TABLE II. The reader can note that these are identical to the results of TABLE I except that the motions are now inertial instead of rotational. In particular we note cases 6 and 8, in which the wire **OR** comoves with the magnets **MM** and yet, THERE IS A POSITIVE INDUCTION **+E**. This induction is located at **OR** and not at **ECR**, since the latter lies in a field free region and its motion is irrelevant. (**ECR** moves in case 8 but not in case 6; yet, both cases yield **+E**).

BRIEF DISCUSSION AND CONCLUSIONS

- - When relativistic equations are applied to the rectilinear experiments of Figs. 3, 4, 6, and 12 the predicted induced (Lorentz) field, **v x B**, is always 0. This is true both for an observer fixed to the moving magnet **M** and for one fixed to the Lab. (See detailed equations in Ref. 3). Yet, in Figs. 6 and 12 the experiments show a positively induced **v x B** effect. Relativity theory, being a local field theory, cannot take into account the crucial role played by the distant transversal edges of the magnets, which are present in Figs. 3 and 4, (Killing" the induction), and absent in Figs. 6 and 12, allowing it to happen. Hence, Special Relativity FAILS in an experiment (Fig. 12) which is at the heart of its domain of application, (the electrodvnamics of moving bodies). And the General Theory cannot come to the "rescue" (no accelerations are involved).

WE NEED, THEREFORE, A NEW PHYSICS FOR THE 21st CENTURY!

REFERENCES

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(3) - Müller, F.J., "Unipolar Induction", *Galilean Electrodynamics*, Vol. 1, p. 27, (1990).

COMMENTS?

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