'Coil Effect Design' with Thakar's theory of Magnetism 1964

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INTRODUCTION

The Northern and Southern lights also called the **Aurora Borealis** and **Auroral Australis** are a natural light display in the sky particularly in the high latitude (Arctic and Antarctic) regions known to be close to the magnetic poles of the Earth.

*'Thakar's electronic theory of magnetism 1964'*has been applied to the SUN and the Earth.

Adiminishing electrical component does reach the Earth's auroral zones and lower latitudes by atmospheric dispersal. The **'Coil Effect Design'** will be presented on how to tap this component of solar electrical energy supported by *dot product calculations*.

METHOD

*'Thakar's electronic theory of magnetism 1964'*along with a simple electromagnetic experiment to show that the magnetic force is a combination of electron $(-e)$ and proton $(+e)$ dependant forces entwining with each other will be summarized.

It will be explained that as the magnetic force from the magnetic SUN approaches the magnetic Earth, its positive and negative components will split and this mild electrical energy reaching the Earth could be multiplied with the 'Coil Effect'.

'THAKAR'S ELECTRONIC THEORY OF MAGNETISM 1964'

'Thakar's electronic theory of magnetism 1964' is based on the structure of the atom and explains how the positively charged protons and the negatively charged electrons of an atom are responsible for both *magnetism* and *electrical forces*. In the diagrams that follow in this article, we are using a simplified version of the structure of an atom with a large black proton mass and small red inner electrons. *Please note that the outer free valence electrons (not shown) take part mainly in electrical current flow.*
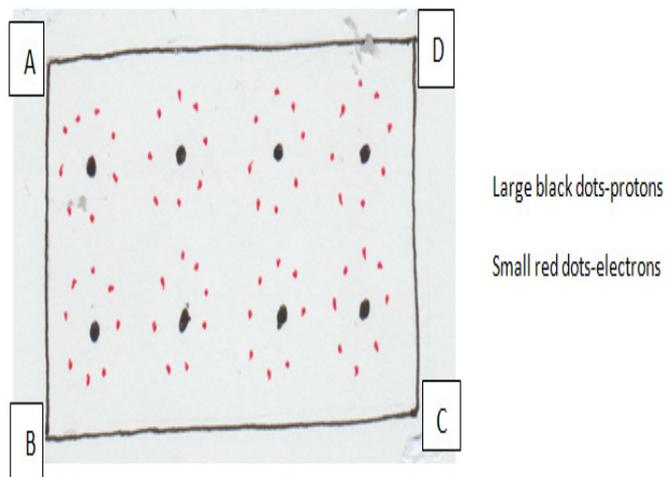

Figure 1a

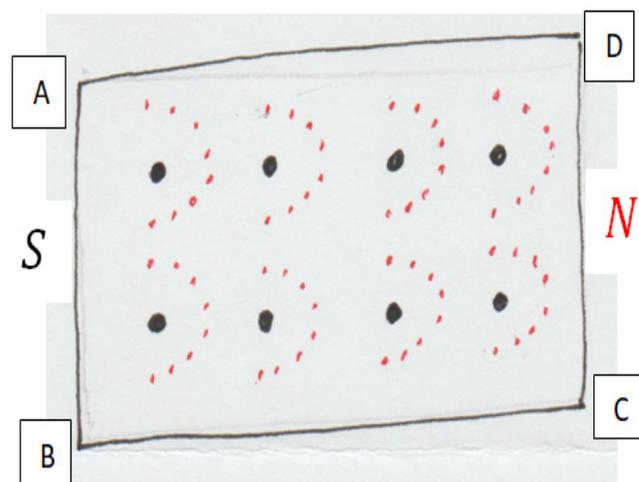Figure 1a shows neutral iron atoms in the un-magnetized state.

Figure 1b

Figure 1b shows the change in position of the inner electrons on magnetization. If the displaced magnetized electrons have a negative torque $(-\tau)$, then the exposed protons at the other end of the magnetized atom will have a positive torque $(+\tau)$ and vice versa. This chain continues with the magnetic ends manifesting as the exposed negatively torqued $(-\tau)$ electron based negative or north magnetic pole **N** and the exposed oppositely positively torqued $(+\tau)$ proton based positive or south magnetic pole **S** of the magnet.

HARNESSING THE MILD SOLAR ELECTRIC CURRENT ON OR NEAR THE GROUND

Thus, this simple grounded coil will charge the cell-phone or make an AM transducer audible when applied to the ear with the help of the opposite increased electric energy down the middle of the coil. If we put a straight wire instead of the coil, it does not work.

This coil will work better in cold weather and at night as per previous discussion. It will work better in the auroral zones but should work well beyond the auroral zone as the solar electric current headed for the magnetic poles of the Earth undergoes some dispersal by the atmosphere. The coil effect could be calculated as follows.
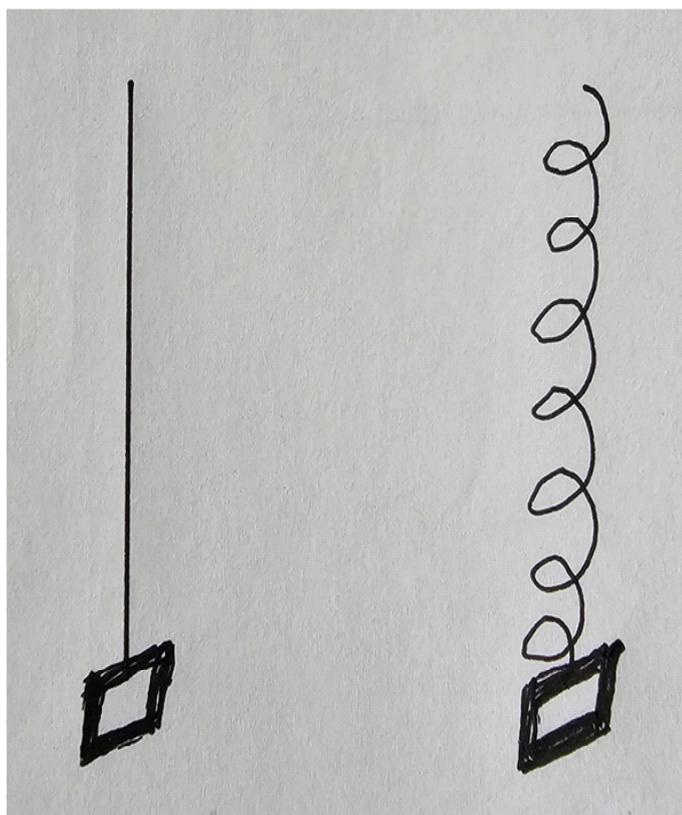
COIL EFFECT DESIGN

Figure 3a

In above Figure, a straight steel or copper wire with about 1 mA current from the SUN connected to an AM transducer. No voice heard.

The author has repeated the above experiment many times and only the coil effect works.

Same steel wire converted into a coil for 'Coil Effect' and connected to an AM transducer.

Clear AM radio functions owing to the '***Coil Effect***' as ***seen experimentally.***

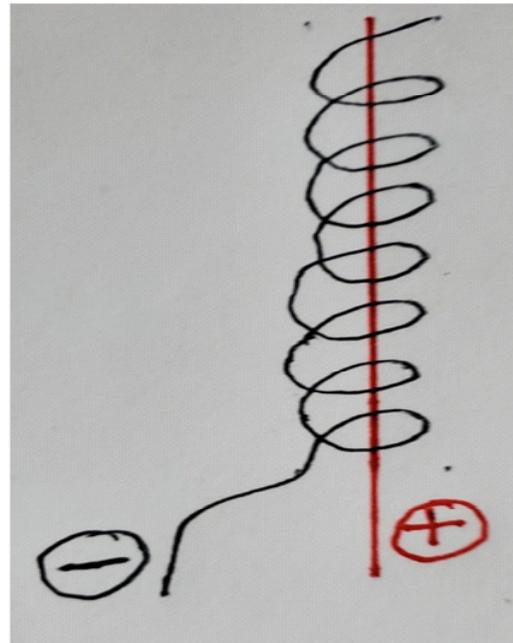### Coil Effect Design (contd.)

Figure 3a

In Figure 3a, a central wire is placed in the coil to facilitate the flow of opposite electrical energy due to the 'Coil Effect'.

As the Solar electrical energy reaching the Earth is less than 5 mA, it is not felt by the human body.

Step Two

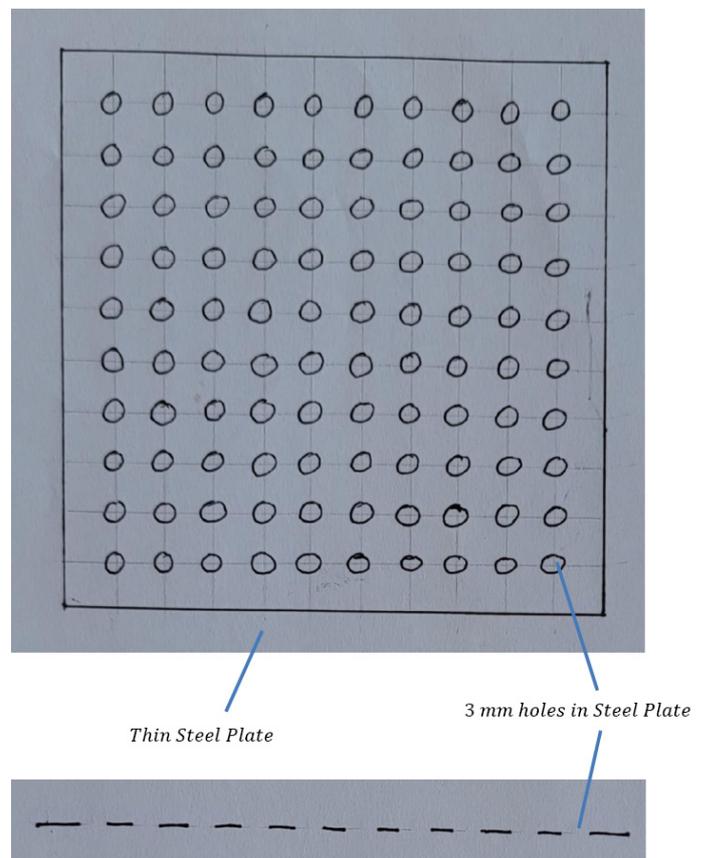Arrange these coils in series on a steel plate to increase the electrical energy.

Thin Steel Plate

3 mm holes in Steel Plate

Figure 3b

Figure 3c

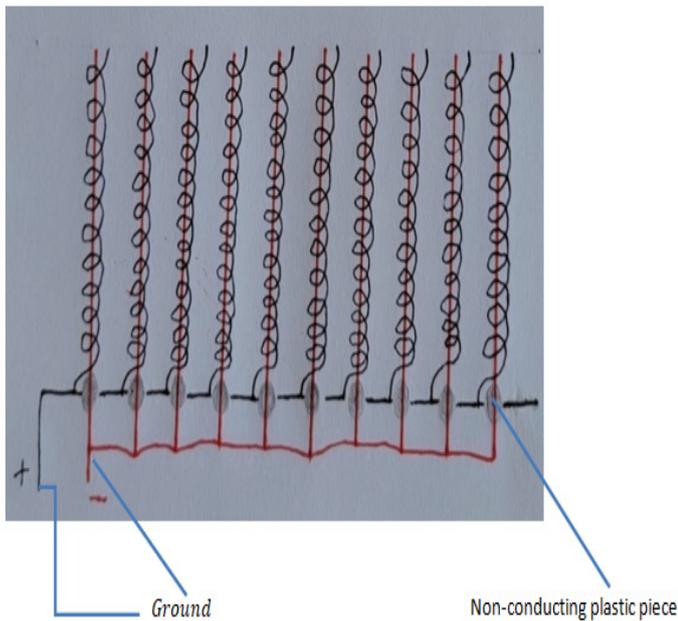## COIL EFFECT IN THE CENTRAL COPPER WIRE FROM THE CONDUCTING COIL

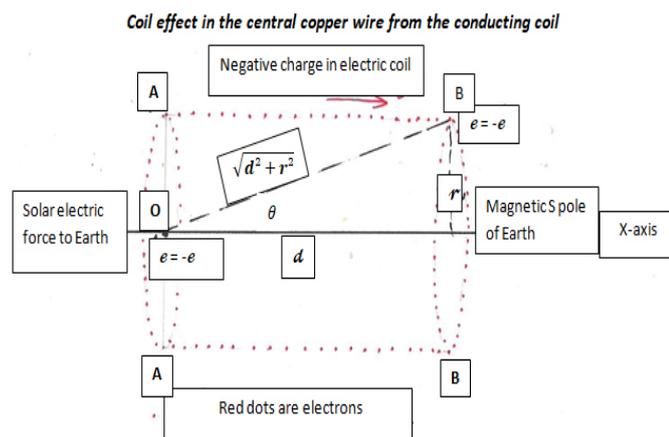Coil effect in the central copper wire from the conducting coil

Figure 10

AA to BB is a cylindrical conducting copper coil from point A to point B pointed towards the magnetic South pole N of the Earth which is near the geographic North pole of the Earth. A copper wire has been placed in the center of the coil along the X-axis. At the point O of the central copper wire along the X-axis, we have placed a valence electron of an atom of the wire with a charge $e = -e$. As the mild solar electrical current is flowing through the coil, we have electrons flowing from $A \rightarrow B$ in the copper coil and we have an electron with a charge $-e$ at point B in the conducting copper coil. The distance $A \rightarrow B = d$ in meters and r is the radius of the coil in meters. Applying Pythagoras theorem, the distance $OB = \sqrt{d^2 + r^2}$. Using Coulomb's law, the force of repulsion between $e = -e$ at O and $-e$ at point B is

$$F = \frac{k(-e)(-e)}{(\sqrt{d^2 + r^2})^2} = +\frac{ke^2}{d^2 + r^2}$$ (Newtons - the electrical force unit)

Where k is the Coulomb's constant. The bold letter equations are vectors.

The plus sign indicating repulsion between the flowing negative electron at point B and the negative free valence electron of an atom of the central copper wire at point O.

θ is the angle between OB and the X-axis and the dot product vector of OB along the X-axis is

$$F\cos\theta = +\frac{ke^2}{d^2 + r^2}\cos\theta = +\frac{ke^2}{(d^2 + r^2)} \cdot \frac{d}{\sqrt{d^2 + r^2}}$$

When d is very large compared to r, then r^2 is still smaller and can be ignored and the above vector along X-axis is

$$F\cos\theta = +\frac{ke^2}{d^2} \cdot \frac{d}{\sqrt{d^2}} = +\frac{ke^2}{d^2}.$$

As the electrons move from A to B, d varies from $d = 0$ at A to $d = d$ at B and if d_x is an infinitesimally small distance along A-B, then the vector along the X-axis becomes

$$F = \int_0^d +\frac{ke^2\,dd_x}{d^2} = +ke^2\int_0^d \frac{d_x}{d}$$

The derivative of $\log d = \frac{1}{d}$, so the anti-derivative of $\frac{1}{d} = \log d$ and integrating from 0 to d

$$F = +ke^2[\log d]_0^d = +ke^2(\log d - \log 0) = +ke^2.\log d$$

newtons ………….. Equation 1a

As the number of electrons rotating in a circular manner in every coil is a at any particular time where in case of copper wire, each atom has one free valence electron, so a also represents the number of copper atoms in the circular coil, where a depends on radius r and the **total a** will depend on the number of coils at each level and the total vector from **equation 1a** along positive X-axis direction from $A \rightarrow B$ is

Electrical force $F(total) = +kae^2\log d$ newtons------------------------Equation 1b

This increased central electrical force will manifest on loose valence electrons in the central wire. The increased positive force on the central wire is due to the *coil effect* where an otherwise moving electron in a straight line has become a significant multiple at each level and increasing the distance d of the coil as far as technically possible would also help.

As the atoms in the central metallic wire are in a homogeneous medium, the calculations can be done from the central axis of the central wire for all the atoms in the central metallic wire.

The above calculations point to a significant multiplication of the available solar electrical energy with the help of the **coil effect.** Thus, the positive force on the central wire causing a positive electric current in the same direction as the negative electric current in the coil is a significant multiple of the mild negative electric current in the coil.

An electron or a proton placed in the middle of a super-conductor coil travels at great speed along the central length of the coil.

Although Fig.4a and Fig.4b will function all the way upto the equator, they will work best in:

-**auroral zones** (magnetic poles of Earth being the primary target of solar electric energy)

-better with **colder** temperature (superconducting effect)

-better at **night** (explained in this article)

-better at **height** (solar electric energy keeps on diminishing as it approaches the ground).

The aim would be to convert a milli-ampere into an ampere.

THE PARALLEL COIL EFFECT DESIGN

We arrange these coils in series to increase the electrical energy depending on requirement.

Notes: Completed Orders by author for provisional patents for Figure 4a and Figure 4b.

| ORDER NO.	DOCUMENT NAME	FOR	DATE PURCHASED	STATUS	
38372066	Provisional Application for Patent	Solar electric charger atop a Windmill or Windmill + Solar electric charger.	03/20/2015		
34803625	Provisional Application for Patent	Solar electric energy cell-phone battery charger.	04/20/2014		

PS Any electrical engineer helping with the above designs for my International Patents will receive a financial share.

DISCUSSION

Harnessing the mild solar electric current on or near the ground

Thus, this simple grounded coil will charge the cell-phone or make an AM transducer audible when applied to the ear with the help of the opposite increased electric energy down the middle of the coil. If we put a straight wire instead of the coil, it does not work.

Self-charging cellphone battery
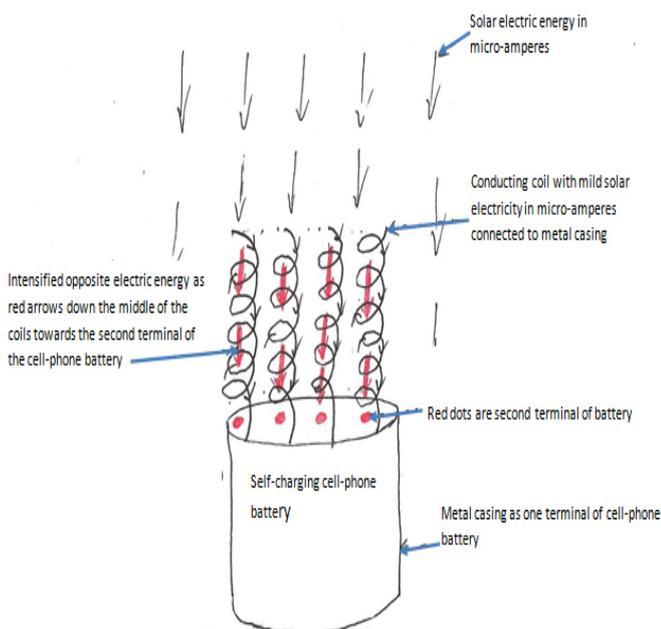
Solar Electric Cell-phone Battery Charger

Figure 4a is an outline of self-charging cell-phone battery. For very simple functions, this cell-phone could work without a battery although grounding will be needed.
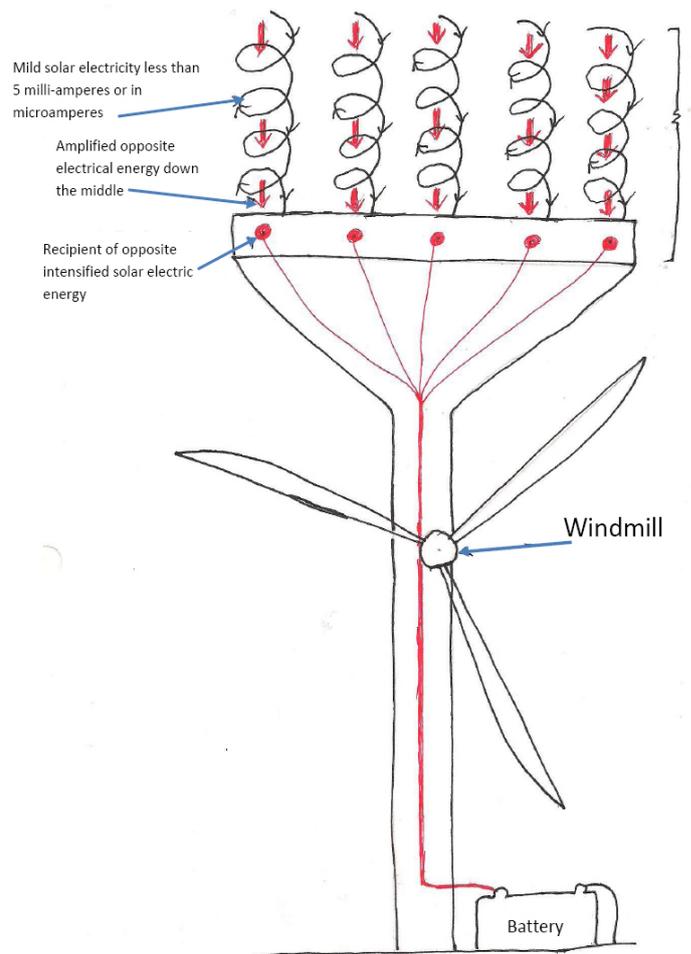

Figure 4b

Figure 4b is Solar electric amplifier atop a windmill making electricity more economical.

CONCLUSION

The solar IMF causing the Northern and Southern lights also known as Aurora Borealis and Aurora Australis is explained

with the help of *Thakar's electronic theory of magnetism 1964.*It is explained how the solar IMF splits into its positive and negative electric components which flow towards the opposite magnetic poles of the Earth from both day and night sides and not in the east-west direction as previously stated. It is explained why both the aurorae are equally bright and brighter on the night side.

Harnessing of milder electrical energy reaching the Earth from the SUN by amplifying it to a useful level by the **'Coil Effect'**. These applications are supported with *dot product calculations.*

The *solar IMF* as being composed of positive and negative electrical energy has been explained with the application of **'Thakar's electronic theory of magnetism 1964'**.

This article also helps in supporting Thakar's electronic theory of magnetism 1964 as it simplifies the above explanations unlike Maxwell's dipole theory of magnetism 1873.

REFERENCES

Message from the SUN in ARJPS by Avtar Singh Gill