

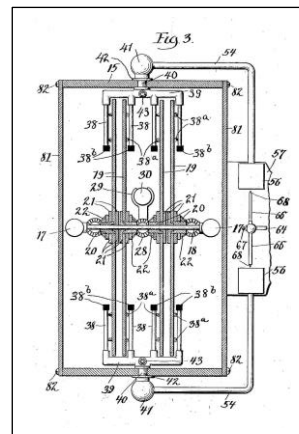
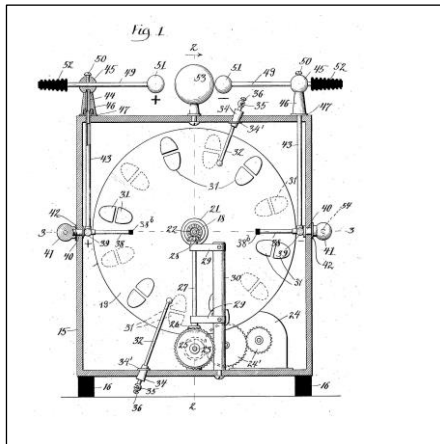
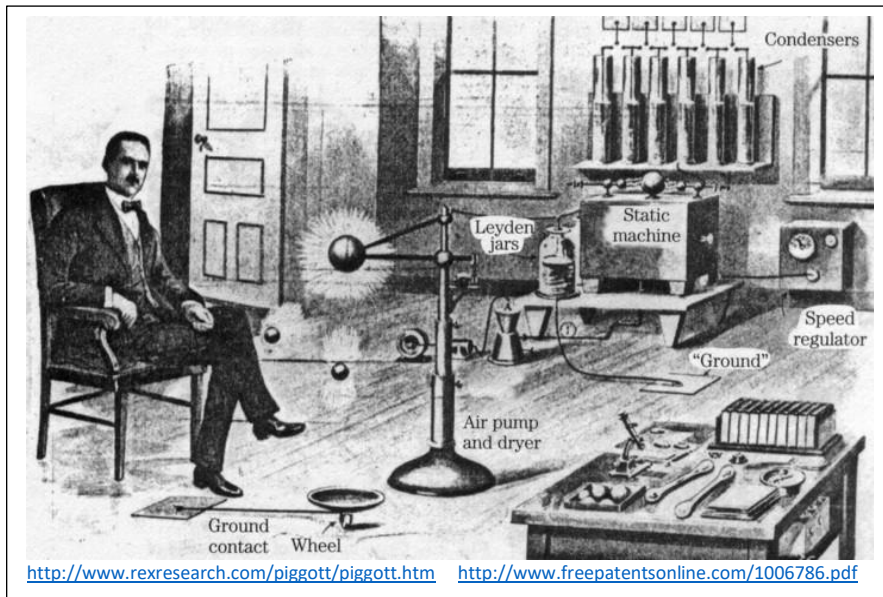
Research needed on monopolar pulsed high voltage levitation

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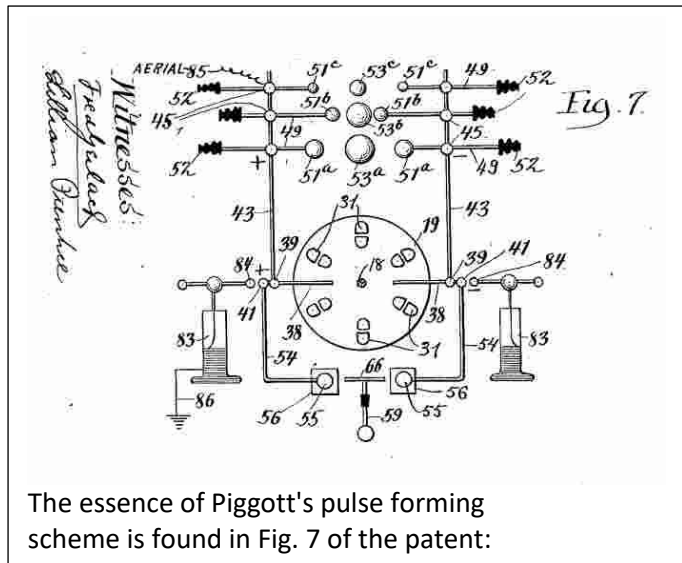
The need for investigation of special electromagnetic effects

When one reviews the literature on electromagnetism, certain "neglected topics" show up that have never been investigated but which seem to deserve a lot more study because they have very consequential implications. This is stuff that universities ignore and is not in the science text books, not even in books on so-called "advanced electromagnetics". Physicists normally write off these strange occurrences as "anomalies" and don't bother investigating them further, for to do so, would, in their view, be a "waste" of time and money and of course risk to reputation. Hence, it is the intent of this paper to very briefly explore these topics in more detail. Some historical examples are given below.

Piggott's experiments in "Electro-Gravitation"



Piggott's static generator for space telegraphy (1911) Figures show the Wimshurst dual rotor system <http://www.freepatentsonline.com/1006786.pdf>



The essence of Piggott's pulse forming scheme is found in Fig. 7 of the patent:

5 When the electric generator described, is operated the condenser brushes and sparking terminal upon one side or pole of the machine will become charged with positive and those upon the other side or pole of the machine will become charged with negative electricity. A part of the charge however will leak across from the short circuit terminals 55 through the shiftable conductor or switch 66, the points of which are in line 15 with the openings 58 in the receptacles 56 which inclose the short circuit terminals. A sufficient amount of the charge will thus leak from one side or pole of the machine to the other to prevent any disruptive discharge 20 or spark between the discharge terminals 51. When however, the sparking terminals are properly adjusted and the key is depressed, a disruptive discharge or single spark at once occurs between the discharge terminals, 25 since the conductor or switch 66 is by the depression of the key moved out of line of the openings 58 in the receptacles 56. The leakage of current between the poles of the machine is thus interrupted so that a heavy 30 spark at once takes place between the discharge terminals.

Piggott [patented](#) an electrostatic machine for use in "space telegraphy" (filed 1903, issued 1911). In the course of testing his machine, he discovered some levitation and "black belt" effects on silver balls. Today's textbook physics cannot account for these effects.

A quick reading of Piggott's [patent](#) (filed 1903, issued 1911) describes an electrostatic generator ("influence machine") for use in "space telegraphy" (radio). The machine is essentially an industrial strength Wimshurst machine with multiple pairs of counter-rotating disks. It is enclosed in an air tight container which is pressurized with dry air to about 30 p.s.i. The air is supplied by a pump and dried over anhydrous calcium chloride (other schemes, using a dry ice cold trap, for example, could be used). The Leyden "condensers" on the wall are apparently part of the Wimshurst design. The output is stored in a bank of "Leyden jars" to the left of the "Static Machine". One side on the bank connects to ground, and the other goes to the machine and the sphere on the stand next to Piggott. Details of the patent relate to the machine's use in "space telegraphy" wherein a single discharge (spark) represents a "dot" and two closely spaced discharges represent a "dash".

The antenna or "aerial" is item 85 and is connected to the positive HV terminal. There are three sets of spark gaps shown (51), only one of which is in use at any one time. The central sphere (53) in the gap is used to vary the capacitance for tuning ("syntonizing") the emission (See also [Righi Spark Gap](#)). Spheres 51 are about 1.5 inches in diameter and the intermediate sphere (53) is about 3 or 4 inches in diameter. "When a signal is to be transmitted the negative terminal 51 is preferably adjusted to a position quite close to the intermediate discharge ball 53 while the positive discharge terminal 51 is placed about an inch away from the center discharge ball so that a heavy strong spark occurs between the positive sparking terminal and the center discharge ball." The two Leyden jars, or series of jars, are at 83 and are used for improving efficiency and for tuning. The signaling switch (59) in figures 4 and 5 is pressed to move a corona leak rod (66), allowing charge to rapidly build up and rapidly fire a single "heavy spark" at the spark gap (comprised of 51,53, 51), the length of which is adjustable. (Note that the signal switch (59) is used to turn OFF the leak.)

The machine is clearly capable of producing pulsed, high voltage electricity of either polarity, and with a fairly strong amount of current (likely several hundred microamps). The waveform would likely be free of *bipolar* ringing. The repetition rate would be whatever is sufficient for use in telegraphy (in a test configuration my initial guess would be around 100 Hz). Pulsed power could well be in the gigawatt range. (500,000 volts @ 1000 microamps /100 nanoseconds = 5 gigawatt) http://en.wikipedia.org/wiki/Wimshurst_machine , http://en.wikipedia.org/wiki/Van_de_Graaff_generator

As mentioned above, Piggott noticed two strange effects when testing his machine: levitation and “black belt” phenomena. Here is a partial description of Piggott's experiments from "Electric Flying Machines: Thomas Townsend Brown", by Gerry Vassilatou (http://www.bibliotecapleyades.net/ciencia/ciencia_flyingobjects25.htm <http://borderlandresearch.com/book/lost-science/electric-flying-machines-thomas-townsend-brown/1>)

"Mr. Piggot observed a strange electro-gravitational effect. It was first seen, the result of accidental occurrences while performing unrelated electrical experiments.

Mr. Piggot was able to suspend heavy silver beads . . . and other materials in the air space between a charged sphere and a concave ground plate when his generator was fully charged at 500,000 electrostatic volts. The levitational feat was only observed when the charged sphere was electropositive.

The Piggot effect was clearly not a purely electrical phenomenon. If it were, then the presence of the grounded plate would have destroyed the effect. The very instant in which a discharged passed to ground, every suspended object would have come crashing down. But, without the ground counterpoise, the levitational effect was not observed. Mr. Piggot believed that he was modifying the local gravitational field in some inexplicable manner, the effect being the result of interaction between the static field generator and some other agency the ground.

Piggot further stated that heated metal marbles fell further away from the field center than cold ones. These suspended marbles remained in the flotation space for at least 1.25 seconds even after the static generator ceased rotating. The marbles fell very slowly after the field was completely removed; a noticeable departure from normal gravitational behavior.

Mr. Piggot stated that suspended objects were surrounded by a radiant “black belt”. . . . Effects developed by Piggot were entirely similar to those observed by Nikola Tesla, who employed high voltage electrostatic impulses.

. . .

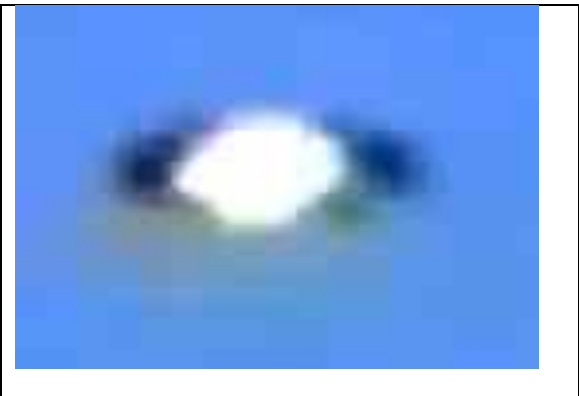



George Piggot mentioned the mysterious “black band” which appeared around his highly charged suspended metal marbles. Light seemed to disappear into these zones. But it was Nikola Tesla, whose forgotten and ignored testimony on the perceptual effects of high voltage electrical systems took first place. Tesla produced such intense electrical arcs that the same strange blackout effects were repeatedly observed. In the case of Tesla’s famed Colorado Springs Experiments, the blackout effect produced a lingering state

Noted in his published diary, the results followed the intense activity of his Magnifying Transformer. Visual distortions, clarifications, black shadows, black streamers, black waves, lingered for hours all around his plateau laboratory, whereby he stated that:

“These phenomena are so striking that they cannot be satisfactorily explained by any plausible hypothesis, and I am led to believe that possibly the strong electrification of the air, which is often noted to an extraordinary degree, may be more or less responsible for their occurrence.” "

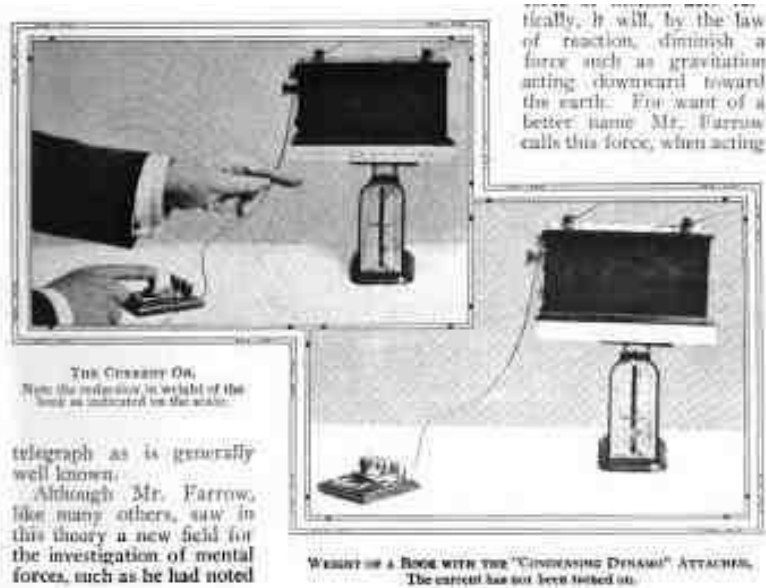
It is not clear from the picture whether the levitation effect is occurring with a pulsed field or a purely static field; but it is difficult to see how a *static* field could produce the levitation and black band effects. Because he intended to use the machine in space telegraphy, the spark repetition rate would be important, and certainly he would have tested it. Likely Piggott tested the machine in the normal configuration in which it was to be used, except for the switch (66) would be set for continuous sparks. The spark gap is above the words "Static machine"; actual connections are not clear from the photo, but it appears the test sphere was connected to the "Leyden jar" and then to the spark gap through the aerial (85) terminal.

The “black band” phenomenon has shown up in other contexts that seem to be related to levitation. For instance, there are many, many pictures of UFOs that show black band effects:

		
<p>http://areazone51ufos.blogspot.com/2013_11_20_archive.html</p>	<p>http://www.youtube.com/watch?feature=player_embedded&v=5dRCIHxyGVY#t=339</p>	<p>https://www.youtube.com/watch?v=6KNkfpj3s5A</p>
	<p>This UFO shows a dark black wake which quickly disappears! http://youtu.be/kCAYSnh3I7Q</p>	

A study of these structures indicates that they are *not* explainable as natural phenomena, nor as Chinese weather balloons filled with Air Force swamp gas.

Edward S. Farrow Gravity Reduction experiments



<http://www.rexresearch.com/farrow/farrow.htm>

Ruhmkorff coil
<http://www.sparkmuseum.com/INDUCT.HTM>

Farrow demonstrated a weight reduction effect by means of a "condensing dynamo" circa 1911. The device was not patented and the internals of the machine are not described. Various photos give the impression of an old-style Ruhmkorff induction coil with the terminals of the secondary connected to long wires. The machine was placed on top of a book, on top of a spring scale (*not* a balance scale). When turned on, the combination gradually lost 3 ounces of weight. Today's textbook physics cannot account for these effects.

Dr. Francis E. Nipher's Electro-Gravitic Experiments

Nipher conducted experiments (circa 1917) that suggest an object's weight depends on local gravity, its mass, and its electrical history. (Pulsed power was apparently NOT involved in these experiments.)

<http://www.rexresearch.com/nipher/nipher1.htm#1> (studies on gravitation)

http://en.wikipedia.org/wiki/Francis_Eugene_Nipher

<http://genforum.genealogy.com/nipher/messages/2.html>

(Dr. Nipher was an esteemed educator and was professor of physics at Washington University at St. Louis, Missouri. He was also president for several years of the St. Louis Academy of Science and of the Engineers Club. He wrote several valuable papers in the late 1800s. Nipher Middle School was named after him.)

John Hutchison's Experiments

"In 1979, Hutchison claims to have discovered a number of unusual phenomena, while trying to duplicate experiments done by Nikola Tesla. He refers to several of these phenomena jointly under the name "the Hutchison effect", including: levitation of heavy objects; fusion of dissimilar materials such as metal and wood; while lacking any displacement, the anomalous heating of metals without burning adjacent material; the spontaneous fracturing of metals; changes in the crystalline structure and physical properties of metals; disappearance of metal samples."

http://en.wikipedia.org/wiki/Northern_Mysteries

Hutchinson achieved these effects reportedly with a Van de Graaff generator, and two or three Tesla coils. And just for good measure, he added some stray microwaves, laser beams, and whatever else he could conjure up from military surplus devices. The effects described above emerged from this chaotic (and hard to reproduce) electrical environment.

Supposedly, the Hutchison effect has never been replicated publicly by an independent third party. Some people regard the effect as very credible but others regard it as pure folklore. My own suspicion is that there are indeed such effects and that they are "non-local" in their nature. These kinds of effects can be produced by electric and magnetic fields, which are themselves non-local. The public scientific community has little understanding of non-local effects (except as applied to quantum mechanics), and would easily dismiss them as "experimental error" or as "anomalies" or even as hoaxes. As Antoine Lavoisier (the father of modern chemistry), told his fellow Academicians, "Stones cannot fall from the sky, because there are no stones in the sky!" In the popular scientific view, if something cannot happen, it simply does not, despite evidence to the contrary. "Galileo, there is no need for us to look through your telescope!" Hence, the Hutchison effect is easily written off and ignored by institutional science. But if it is a real and reproducible effect, the scientific insights would be enormous.

<http://www.hutchisoneffect.ca/>

<http://www.slideshare.net/johnkhutchison/hutchison-effect>

<http://www.youtube.com/watch?v=tnBdhsXl088&feature=related> (iron bar warping, fragmenting)

<http://www.youtube.com/watch?v=IID26ZN8caY> (distorted metals)

<http://www.americanantigravity.com/news/beyond/the-hutchison-effect-remastered-hutchison-effect-footage.html> (levitation)

Conclusions and recommendations:

There are historical precedents relating pulsed monopolar (+) high voltage power to levitation effects. These have been done by credibly credentialed people spanning several decades, a few of which have been mentioned above. Newspaper articles have been written about them. Patents have been granted. Demonstrations at world fairs have taken place. The observed effects are strange, if not outright bizarre, but appear to be real. They are understandable in the context of "non local" physics.

Nowadays there are many commercial electrical machines that can produce the required kind of pulsed power. They have esoteric uses such as accelerator mass spectroscopy, laser power sources, and pulsed X-ray sources. They also have ordinary uses in industry such as pasteurization of milk and orange juice as well as electroporation of sugar beets (all without using heat). Other uses include recycling, surface treatments, gas and water treatment, and many others. Military uses are legion, especially for wide-band radar, remote sensing, and communications.

Industry apparently does not use such machines for levitation applications. Non-contact levitation would have obvious uses in construction, medicine, and production of perfect vacuums. More generally, motion can be produced directly with this technology. There is minimal need for gears, bearings, cranks, pistons, turbine blades, wheels, lubricants, rockets, etc. Friction would be minimal and conversion efficiencies very high. Basic machines would be simple and easy to manufacture. But rumor has it that levitation has not been exploited by commercial companies because it would place the business at risk for losing lucrative government contracts, or incurring onerous government regulations because of implied threats to its monopoly on rockets and advanced swamp gas powered weather balloons. Such companies are also sure to incur the wrath of the petroleum, energy, and transportation industries.

And so electromagnetic levitation, despite being around for over 100 years, and having an enormous number of potential uses, is a technology that no “institution” wants to touch. That seems to leave the field up to people like hobbyists and retired engineers and scientists. Hobbyists are already building pulsed power machines. But, except for impressing their girl-friends with loud and spectacular sparks, they lack focus; this is just an adult version of kids playing with matches.

I remember the former days of build-it-yourself amateur radio. A lot of us would build our own “rigs” either from kits or from junk box parts. We would build, troubleshoot, and test them. There were teenage “arms races” to build the most stable oscillator, the sharpest notch filter, the most powerful final amplifier, the most sensitive/selective receiver, the best DX. We learned about capacitors, inductors, transformers, tubes, transistors, diodes, Ohm’s law, complex impedance, Smith charts, antennas, resonance, coax, EMI, decibels, time derivatives, lots of math, how to actually build things, how to use an oscilloscope to see signal waveforms, how to calibrate tuned circuits with a buzzer In fact, we learned a lot of useful stuff in those days, and had a lot of fun doing it too.

But then things changed. The integrated circuit and computers emerged on the scene. Our craft gradually became more abstract, and moved away from hands-on “primitive” fundamentals. The new stuff was superior, and all we had to do was buy it.

If we are going to recapture the enthusiasm and wonder of those former days, our young people need to build simple, inexpensive machines with “old” *technology* that will open up “new” *scientific* frontiers such as non-local physics. Our current Pavlovian based educational system can be replaced with a more engaging, personally relevant form of Science, Technology, Engineering, and Mathematics (STEM) curricula.

A good place to start in harnessing this human energy, creativity, and enthusiasm would be to replicate Piggott’s experiments of 1911.