# 'Extraordinary Science' and the Strange Legacy of Nikola Tesla

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Each summer the International Tesla Society holds its Extraordinary Science Conference in Colorado Springs. The society honors the memory and work of Nikola Tesla (1856-1943), pioneer of electrical technology and world-class eccentric. One purpose of the society—and apparently the conference—is "to provide a forum for voicing new and untested ideas . . . for the education and enlightenment of the scientific community, students and the general public."[1] This was the first year I had attended.



*Half a century after his death, Tesla, a pioneer of electrical engineering and a world-class eccentric, has developed a cult following. The International Tesla Society's annual Extraordinary Science Conference—a forum for all misunderstood inventors and a bizarre showcase of untested ideas—is one manifestation.*

As a forum for untested ideas the conference is a roaring success: It is a magnet and showcase for some of the most delightfully untested—in a few cases untestable—notions currently vying for attention. As an added attraction, this conference included a much larger number of very old ideas—tested and discredited innumerable times and yet still hanging on.

Perhaps this is what is meant by the term *extraordinary science.* It is certainly distinguished from conventional, nonextraordinary science. In ordinary science, ideas gain stature as unsuccessful attempts to discredit them are made. But this is too tame for the extraordinary scientist, whose ideas retain, or even gain, stature despite *successful* challenges. In this perverse sense the canons of extraordinary science may be seen as much more stringent than those of ordinary common-or-garden-variety science. I'm perfectly willing to concede this is extraordinary.

Martin Gardner once observed that pseudoscientists tend to fall into two groups: those motivated to defend some religious dogma and

## Why Tesla?

It's easy to see why Tesla should have become the focus of an effusive subculture: He was absolutely convinced of his own genius; he promoted his own personality cult of the "great inventor" sort; he enjoyed financial success in early life, and later in life was able to indulge in a panoply of bizarre and grandiose ideas; and he achieved considerable scientific notoriety, despite a flawed understanding of physics and other sciences.

It was Thomas Edison who made inventing a corporate endeavor. Since Edison, successful inventors tend to work in research departments of large companies—technological development today is too expensive and too complex for any single person to understand it all. At least part of Tesla's reputation stems from the fact that he was the last of the great inventors to work alone. A mediocre artist may acquire an exaggerated reputation by dying just before the onset of a dark age, and something similar seems to have happened to Tesla's reputation among unsung geniuses today.

—*J.J.*

those motivated by a belief in their own greatness, unrecognized by the world, which in some cases can grow into paranoia.[2] The conference was made up almost entirely of this latter group, which we might call *egotistical* pseudoscience to distinguish it from religiously motivated pseudosciences like creationism. The conference is a focal point for a subculture of inventors whose genius has yet to result in fame or fortune and whose work is regarded by conventional scientists as trivial, dubious, or just plain loony.

There were two large presentation rooms. Positioned on the stage of one was a large high-voltage generator, obviously intended for use in some display of electrical pyrotechnics. Such exhibitions were a mania with Nikola Tesla, who loved to be photographed at lectures standing on one of his own high-voltage machines—called a Tesla coil—with streamers of electricity shooting from his fingertips. The society named after him puts on similar shows. I suspect this curious form of theater is now considered traditional and obligatory by regular conference attendees; certainly this odd mania for artificial lightning is what the casual visitor is most likely to remember.

Six tables in the hall outside displayed various wares. Some of these displays were by small companies, while others were staffed by individual inventors just itching to talk about their work. This conference had the air of an ordinary industrial fair, albeit a very small one.

One such display was the Quantum Electronics Corporation's Panda Air Purifier. This, it turns out, is an ozone generator. Ozone is produced when electricity discharges through air, which may be why this company thought the Extraodinary Science Conference would be an appropriate venue for its display. The device may contain a Tesla coil. Testimonials to the unit's efficacy were distributed.

In another corner a salesman was demonstrating something called the Lakhovsky Multi-Wave Oscillator,

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also called a "Violet Ray Device." This is a modern version of a "device for electrical healing," originally manufactured in the 1920s. It is built into an attaché case, which contains a Tesla coil to produce high-frequency high voltage. This is carried by a heavily insulated wire to a wand with a glass bulb at its tip. The bulb is filled with one or another inert gas that produces an eerie violet glow when the power is turned on. When this wand is touched to human skin, a mild electric tingle is felt. (The voltage produced by small Tesla coils is very high but the current is so slight that there is no danger—so long as everything is working properly.) Massaging an afflicted area of the body with this wand is claimed to have therapeutic effects.

One elderly woman—she may have been a little deaf—was so enthralled by the tingly wand that she kept it pressed to her ear for several minutes. (The salesman finally had to tell her it was best not to overdo.) She then asked if it was good for sore feet. The answer was yes, and before anyone knew what was happening she had kicked off her shoes, pulled up a chair, and was inviting the salesman to apply the glowing gadget to her feet. Chivalrously, he complied. (The glow is incidental: healing effects are "not attributable to the glow.")

While all this was going on, the salesman told us a bit more about the device. It seems that regulatory agencies like the FDA don't think much of it and get very upset when claims are made for it. Therefore, the salesman explained—very candidly, I thought—to keep the government happy they have "elected not to make testable claims." They are not, however, averse to distributing testimonials from chiropractors who use the device. Also, he continued, there seems to be a curious anticorrelation between the seriousness of a medical condition and the unit's efficacy: It's not at all helpful for heart attack or trauma from being run over by a car, but for arthritis and rheumatism it "may give what we call *positive experimental results.*" Someone asked if it was good for your aura. Answer, "Oh, it's great for your aura!" This contraption is straight out of the era when mail-order catalogs listed "electric belts" for men (for impotence, and almost anything else) and "magnetic corsets" (for "female complaints").

A banquet room had been pressed into service as a bookstore. Titles spanned the entire range of the egotistical pseudosciences: admiring works on everything from quack medicine to UFO propulsion. One interesting series of books comprised paperback reprints of legitimate science-and-technology "how to" books dating from the 1800s. Considerable space was devoted to books on Tesla and his inventions. Perhaps the largest single section consisted of books on how to build Tesla coils. There were also Tesla T-shirts, coffee cups, and other items for sale. Although usually immune to such kitsch, I couldn't resist a Tesla beer mug along with my arm-load of books.

The lecture/workshop schedule was dominated by talks on recent attempts at perpetual motion. Conventional (nonextraordinary) scientists hold to a principle called the law of *conservation of energy.* This law implies that it is impossible to build a machine that continuously produces more energy than it consumes—in nontechnical terms, there's no such thing as a free lunch. Extraordinary scientists never stop looking for this free lunch: A working perpetual-motion machine would make its

inventor the richest person in history, although most of these people don't stress this, preferring to style themselves as benefactors of humanity.

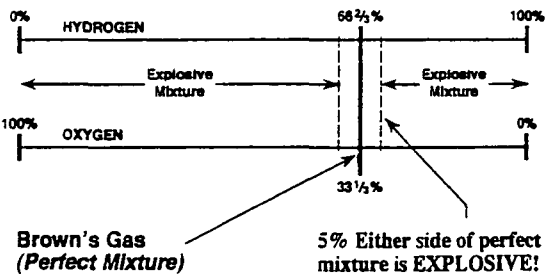
Researchers in this field have come to resent the invidious connotations the term *perpetual motion* has acquired and are looking for less derogatory phrases to describe their work. Currently, the two most popular candidates are *free energy* and *over-unity*. The former seems to refer to machines that extract energy from sources not discernible to conventional physicists, while the latter is applied to machines whose efficiency is greater than one: that is, they produce more useful energy than they consume. Exactly how one could build an "over-unity motor" and not achieve perpetual motion has never been adequately explained.

The scope of the conference, as reflected in its literature,[3] was in itself rather extraordinary.

First, there was "The Incredible World of Gaston Naessens." Naessens claims a number of discoveries. One is "The Somatid, an ultramicroscopic subcellular living and reproducing entity which many scientists believe is the precursor of the DNA [*sic*] and which may be the building block of all terrestrial life." He is also the inventor of a new kind of microscope, with "resolution far greater than current state-of-the-art microscopes"—and presumably just the thing for seeing somatids. On a more disturbing note, consider his formula 714-X: "a compound that has restored to perfect health 750 out of 1,000 cancer victims and has equally dramatic results with AIDS patients." That Naessens has had to face some skepticism in his life is strongly implied by a title the conference bookstore was offering: *The Persecution and Trial of Gaston Naessens*, by Chris Bird.

Next up: Brown's Gas . . . A Technological Breakthrough," by Yull Brown, and "Innovations Using Brown's Gas," by Gary Hawkins. When conventional scientists run electricity through water, the molecules break down into their constituents: hydrogen and oxygen. When Brown does the same thing in his apparatus, he gets something called Brown's Gas: "It has been the popular practice of other investigators of the Brown gas-generator to ascribe to the gas properties of molecular hydrogen and oxygen gasses in proportion of 2:1. Although this assumption is very plausible, it is also very incorrect." Well, that sounds clear enough—until you look at the accompanying figure,[4] which seems to imply that that is exactly what Brown's Gas *is*. It also suggests that mixtures of hydrogen and oxygen are explosive in any ratio. Conventional chemists will be crushed to learn they don't understand the behavior of hydrogen/oxygen mixtures. So just what is Brown's Gas? The conference brochure is a trifle contradictory. It does, however, assure us that it's going to cause a "21st Century Industrial Revolution."

Now, on to perpetual motion and "The Energy Conserver Method," by George Wiseman: "Heat, light and magnetism are side effects of electron flow and do not actually consume elec-




Brown's Gas was billed—for unclear reasons—as a technological breakthrough.

trons." Wiseman has the strange idea that conventional physicists and engineers think electrons are "consumed" or "thrown away" in electric circuits. He has developed methods of designing electrical devices that do not suffer from the unnecessary limitations introduced by this false worldview: "The Energy Conserver allows electron flow but saves those electrons, without losing voltage, so that the electrons can go through the circuit again and again." Remarkable. "This is not *perpetual motion* . . . [but our] circuits could be called *over-unity* when viewed by conventional dogma." (Italics in the original.)

"The Magnetic Battery," by Bert Werjefelt: "Finally . . . an acceptable explanation of apparent violations of the Conservation of Energy Laws emerges!!!" To a nonextraordinary engineer, this "magnetic battery" looks an awful lot like a motor, which turns a generator, which charges a battery, which runs the motor, which turns the generator."[5] Presumably, the battery is there only to get the thing started, but I am plagued with doubts.

"PODMOD . . . The Phoenix Project," by Richard L. "Scott" McKee: "Claims have been made that this device only needs a modest input from a 12V battery to generate up to 4000 times as much power for output!" Hmmmmmm. . . .

"The Energy Machine," by Joseph W. Newman, was probably the high point of the conference. Newman is the most famous of the current crop of perpetual motionists—a label he won't appreciate—having demonstrated his machine to Johnny Carson on "The Tonight Show" and in scientific forums. Physicists currently speculating about superstrings may be more interested in his Unified Theory of All Physical Phenomena, which he developed to explain the behavior of his energy machine. Newman is also a "tragic genius" in the classic Tesla mold, having spent 14 years fighting unsuccessfully for patent recognition. He did, at one point, get the National Bureau of Standards to examine his machine, but the test results were disappointing. To add insult to injury the NBS explained this failure in terms of conventional electromagnetic theory (*SI*, 11:114, Winter 1986-87). Newman is also something of a visionary and philosopher: "Well above and beyond the theory and energy machine, Mr. Newman will continue to promulgate the eternal message of love, truth, and justice for all."[6]

In addition to Newman's Grand Unified Theory, there were several other brands of extraordinary physics in the conference literature: "Zero-Point Energy," "Absolute Electrostatics," "Point Energy Creation Physics," and the "Scalar Magnetic Field." (This last is the basis for frightening new "death rays" that were secretly developed by the Soviet Union.) I'm not sure I didn't miss a few others. All are in conflict with conventional physics, but whether they conflict with each other isn't clear. Extraordinary Scientists seem to get along with each other very well—perhaps because they are too polite to check one another's arithmetic.

Although not nearly so popular as perpetual motion, references to "reactionless space drives" are also common in conference literature. The same people who seem to regard the law of conservation of energy as a violation of their civil rights are equally incensed at Sir Isaac Newton's idea that the only way to get pushed is to push on something else. This law is extremely inconvenient in rocketry because in space there isn't anything to push against. Rockets can get their push only by forcibly expelling materials called propellants. When a rocket's

propellant runs out, so does its ability to change speed and direction—it can only drift. Propellants are also heavy, bulky, and expensive, which places severe restrictions on range and performance. Extraordinary researchers are therefore making extraordinary efforts to find an alternative. Similarly, modern ideas about gravity are treated with the contempt they deserve by those working on antigravity machines—yet another eternal quest for the free lunch.

There was much more. As an adjunct to all the Extraordinary Science going on there was also a session on Extraordinary Financing (their term, not mine): "Gold!!! Everything you ever wanted to know. . . ." by William Cody, a "true descendant of 'Buffalo Bill.' " Perhaps this may give readers without much technical background a better taste for the "anything goes" spirit of the conference than my other examples: for if it strikes you as odd to hear panning for gold being called "finance"—I got the same bemused feeling from hearing these other things being called "science."

As I looked about at the people attending and exhibiting, everyone seemed happy enough, flitting uncritically from one dubious wonder to the next. But I couldn't help wondering about their possible futures, if anyone there would wind up emulating Tesla's tragic later years. In middle age he pursued projects that were dubious at the time and are now regarded as scientific and technological dead ends. Before the turn of the century Tesla had made real achievements, but he spent his last decades destitute and forgotten.

In providing a forum for these people, the conference may serve a valuable function—although not the one its organizers have in mind. The thought that the ideas promoted will set the scientific world on fire we may safely dismiss; but the conference may disperse a little envy. It offers participants 15 minutes of fame in front of a sympathetic audience. For that moment their achievements are real and they are accorded the respect they may feel they deserve. They chat with others who have had to endure obscurity and ridicule and they go away refreshed—perhaps feeling it is really the world's fault, not theirs, that they aren't rich and famous.

The influence of ideas promoted at the conference is likely to be self-limiting, just as the unconscious self-satire at which their proponents are so adept may limit their own influence. For anyone interested in the sociology of the pseudosciences the conference is a real education.

## *Notes*

1. Program for the 1993 Extraordinary Science Conference, p. 2, published by the International Tesla Society, P.O. Box 5636, Colorado Springs, CO 80931. The quotation is from a box listing the "Goals and Objectives" of the society.

2. Martin Gardner, *Fads and Fallacies in the Name of Science*, Dover, 1957, pp. 11-14.

3. All uncredited quotations are from the conference program, pp. 6-9. (See note 1.)

4. This figure was redrawn by the author from one shown in the conference program.

5. Bert Werjefelt. "The Magnetic Battery," *Extraordinary Science*, 5, no. 2. (April/May/June 1993): 23-32. This is the official publication of the International Tesla Society, and this issue is largely devoted to the Extraordinary Science Conference.

6. Conference program, p. 12. (See note 1.)

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