

## TESLA AND A CLASS OF THIRD AND FOURTH GRADE STUDENTS

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**Abstract**—Technological advances are happening at an ever increasing rate, and we seem always to be looking forward—which is good—but would it not also be uplifting to look back and acknowledge—even pay homage—to the pioneering spirit of those whose efforts laid the foundation for all the technological advantages we enjoy today? Our schoolbooks, teachers, and professors seldom mention these pioneers...if indeed they know anything of their existence. Further, many historians and book writers have elevated the names of entrepreneurs and technologists for discoveries made by early pioneers, and if we are not more mindful our historical heritage will be lost forever.

### I. INTRODUCTION

In 1988-89, my students commissioned a bust of Tesla to donate to a large museum (any large museum). After discovering that the Division of Electricity and Modern Physics section of the National Museum of American History made no recognition of Tesla, we offered our bust. The curator promptly refused the offer, stating that he had no use for it. Later we discovered that the curator was displaying a bust of Edison alongside Tesla's induction motor. He also displayed photographs of the Niagara Falls power plant next to one of its original generators. A large brass inscription plate listed Tesla's patents, but there was no reference to Tesla. In the middle of the display stood a life size replica of Thomas Edison with the caption, "While the Niagara AC plant was being built by Westinghouse, Edison was busy with other important things." The caption did not explain what these "other important things" were, nor why this was relevant to the Niagara A.C. power plant. I then decided to enlist my third-graders to write letters, sell T-shirts, and raise money for donating Tesla busts to as many universities and institutions as possible.

This paper will tell my experiences in our nearly 20-year long campaign to reintroduce Tesla to the academic community.

### II. THIRD AND FOURTH-GRADERS VS. SMITHSONIAN INSTITUTION

I have a story to tell you about my successive classes of third and fourth grade students whose efforts are focused on preserving Tesla's memory in history. Along the way, my students somehow learn to write...and enjoy their newly acquired skill. Is this not one of the grand purposes of school? Our class hero is Nikola Tesla because he is the underdog of electrical history, yet his scientific discoveries brought us the prosperity we enjoy today.

This is our incredible story of how my students are making their mark on history for Nikola Tesla. Readers, we are not talking about an obscure inventor lost in history, nor are we talking about a mad scientist who performed magic. Nevertheless, in the nineteenth century when he made his

early discoveries, they may have seemed like magic. We are talking about a man whose major scientific gifts to the world (of AC power transmission and Radio), more than anything else, caused a Second Industrial Revolution. How else can one explain the meteoric advance of science from the horse and buggy days of 1895, when the Niagara Power Project adopted his polyphase AC power system, followed by his invention of Radio...then a mere 74 years later man walked on the moon? It just had to be Tesla who 'invented tomorrow.'

Trust me, it was not Mr. Edison's light bulb that caused this revolution, as the Smithsonian Institution wants everyone to believe; it was Tesla's AC motor, his polyphase AC power transmission of electricity, and his invention of Radio. His AC motor brought unprecedented mechanical power to industry; his AC power distribution system made electrical energy available everywhere; and his radio communication system allowed us to communicate ideas with each other. Is it not an absurdity that this great genius is virtually expunged from history in our country? It is more than that; it is a national disgrace!

### TESLA BECOMES OUR CLASS HERO



Figure 1: The third-graders from Ann Arbor, MI, USA, write letters to get support

These students and others in my successive classes learn the true story of electrical history...not the politically correct version taught by a trusting but brainwashed educational system. When we learned that Nikola Tesla is the underdog of electrical history and is ignored by the Smithsonian, we made him our class hero and immediately started a campaign to secure his proper place in history.

## WE ACQUIRE A BUST OF TESLA

After we learned the heart wrenching story of Tesla's life and realized what a great man he was, we wanted to tell the world about him. We wrote many letters to important people asking for their support. Then a former student approached me one day. She said she had persuaded her father, an accomplished sculptor, to create a bust of Tesla for our class, but we had to pay for the materials. The sculpture is bronze, mounted on premium grade solid granite imported from India. Its appraised value is \$6,000. The plaque reads as follows:

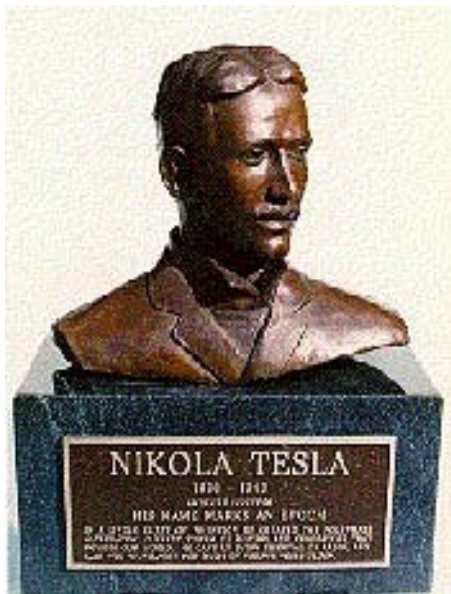


Figure 2 Tesla's bust with the plaque  
NIKOLA TESLA  
1856 - 1943  
HIS NAME MARKS AN EPOCH

"IN A SINGLE BURST OF INVENTION HE CREATED THE POLYPHASE ALTERNATING CURRENT SYSTEM OF MOTORS AND GENERATORS THAT POWERS OUR WORLD. HE GAVE US EVERY ESSENTIAL OF RADIO, AND LAID THE FOUNDATION FOR MUCH OF TODAY'S TECHNOLOGY."

## WRITING LETTERS

Cursive handwriting is normally introduced in the Third Grade. Now our classwork had a purpose...WRITING LETTERS to raise money for our Tesla bust. Many important people responded with generous checks to support our campaign. We even received a check from the president of Sony Corporation in Japan. (At the risk of appearing boastful, my students' letters ARE outstanding.)

## REJECTED

When we offered our finished bust to the Smithsonian. Dr. Bernard S. Finn, Curator of the Division of Electricity and Modern Physics, refused us, claiming he had no use for it.

## TEACHER TRAVELS TO THE SMITHSONIAN TO INVESTIGATE REJECTION

When I visited the Smithsonian to learn why Dr. Finn had no use for our Tesla bust, the reason became indelibly clear.

Please remember, at this time I was still naive about the Smithsonian's bias against Tesla...that is, until I saw a bust of Edison next to the invention that revolutionized the world...Tesla's rotating magnetic field device, giving us polyphase AC and the AC motor...Tesla's U.S. patent number was on his invention, but I could not find any recognition for Tesla.

## A PATHETICALLY COMICAL EXCUSE

When I asked Dr. Finn why he had placed Edison's bust on display next to Tesla's invention, he said, "The sculptor was a phrenologist and wanted to examine the bumps on Edison's head; this makes our display authentic."

## MONEY BUYS HISTORY AT THE SMITHSONIAN

The entire electrical display at the Smithsonian (including their web site) focuses on Edison's brief business enterprise which failed. This is not a story of invention, but of big business. Edison used Direct Current (DC), a technology invented and developed by others (before his time) as a means of powering his incandescent lamp. Big business and the gullible media have exaggerated this story so much that now everyone believes Edison is the father of our system of electrical power.

## OTHER EVIDENCE OF DECEPTION AND OMISSION

I began looking through various Smithsonian publications. My findings were astonishing. The Smithsonian's Visual Timeline of Inventions Book cites Rubik's cube, the electric toothbrush, and the pop-up toaster, but fails to list the AC motor. Tesla is not even listed in the Index. Further, they credit the invention of radio to Guglielmo Marconi. "1895...After reading the scientific writings of Heinrich Hertz, 20 year old Italian Guglielmo Marconi invented radio communication." The Smithsonian ignores Thomas Commerford Martin's biography of Tesla published in 1894 describing Tesla's demonstration of radio transmission in 1893. The Smithsonian also ignores the U.S. Supreme Court's decision upholding Tesla's patents for the invention of radio.

Dr. Bernard S. Finn is Curator and first author of *Lighting a Revolution*, a Smithsonian publication. In his section entitled "The Beginning of the Electrical Age," he names 43 contributors to the science of electricity. Mr. Edison's name is cited many times along with his photographs, but Nikola Tesla's name is omitted. Equally outrageous is the Niagara Falls power station picture of Tesla's AC generators on the last page...and Dr. Finn's concluding remark: "When the Niagara Falls power station began operating in 1895, it signaled the final major act in the revolutionary drama that began in Menlo Park in the fall of 1879." By this time the totally brainwashed reader is led to believe that our electrical world started with Mr. Edison at Menlo Park; then he finished electrifying America in 1895 by creating the Niagara Falls power station. Yet it was Tesla's U.S. patents that were used in that power plant's creation and Edison had no role in the project. Edison actually fought the adoption of AC bitterly by waging his infamous "War of the Currents," culminating in his creation of the first electric chair. Yes, it was Thomas Edison who invented the electric chair to frighten people away from the use of Tesla's AC system of electricity.

## THE STUDENTS FIGHT BACK

Education is the only way to combat the Smithsonian's wrongful depiction of electrical history, but we cannot hope to match the millions of dollars industry and the Edison Institute spend promoting Edison's name. Nevertheless, I believe we can make a significant impact on many of our country's future physics and engineering students by donating busts of Tesla to many of our major universities. People universally recognize that a sculpture is an acknowledgment of one's greatness. Inasmuch as the academic community essentially forgot Tesla for a century, we believe a good first step is to reintroduce him to the students and faculty of our major universities.



Figure 3 Tesla's bust displayed at MIT's Barker Engineering Library

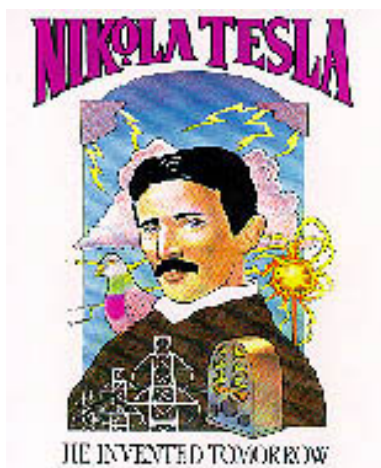


Figure 4 T-shirt with the symbolism representing Tesla's interests and accomplishments.

Written on the bottom: "He Invented Tomorrow".

My students intend to continue learning about Tesla, writing letters, selling T-shirts, and donating his bust to major

U.S. universities. Currently, the bust is honoring Tesla and preserving his memory in history at nine major universities: Harvard, Yale, Princeton, MIT, Caltech, University of Michigan, University of Wisconsin, University of Maryland, and Purdue University. More on our actions can be found on our Web site: <<http://www.concentric.net/~jwwagner>>.

## OFFICIAL STATEMENT FROM SMITHSTONIAN INSTITUTION

Selections from the PBS (Public Broadcasting Station) interview with Bernard Finn regarding Tesla's legacy with Bernard Finn, Curator, Division of Electricity and Modern Physics, National Museum of American History (NMAH), Smithsonian Institution, can be found on <<http://www.pbs.org/tesla/dis/finn.html>>. It is interesting to include Dr. Finn's comments, also presented on the PBS Web site on Tesla, regarding John Wagner's claims: <<http://www.pbs.org/tesla/dis/responses.html>>.

QUESTION: John W. Wagner claims that the Smithsonian has deliberately minimized Tesla's contributions to electrical science. According to Wagner: Its curator essentially credits Edison for our worldwide system of electricity. He also credits Marconi for the invention of radio. This is a deliberate assault on factual history and needs to be challenged. Is Wagner's claim correct? What might the motivation be for the Smithsonian to credit others with Tesla's inventions?

ANSWER: In recent articles in the magazine 73--Amateur Radio Today John Wagner has made several statements about the historical role of Nikola Tesla, about the Smithsonian's treatment of Tesla, and about Mr. Wagner's communications with the Smithsonian. Not surprisingly, my views are somewhat different from his.

There is little question but that Tesla was a genius, whose fertile mind generated a number of ideas at the cutting edge of the electrical technology of his day. Indeed, plausible arguments are made that some of his concepts can be useful in investigating phenomena that we still don't understand. However, like many geniuses, Tesla was a loner. He had difficulty working with other engineers--whether in explaining his ideas to them or in considering their criticisms. The unfortunate consequence of this was that his impact on practical technical developments was severely impaired. This does not make him less interesting; indeed, for those of us who are concerned with the roots of creativity it makes him, if anything, more so. But it does mean that we should be careful in what we claim were the consequences of his activities.

Tesla's concept of the rotating field was clearly innovative and was recognized as such by George Westinghouse when he negotiated to purchase the patents in 1888/9. But to claim, in Mr. Wagner's words, that "he created the polyphase alternating current system of motors and generators that powers our world" ignores contemporary European systems that relied on the work of Pacinotti, Brown, Dobrowolsky, Wenstrom, and also Westinghouse engineers who, with Tesla's help, translated those patents into practical electrical technology.

It also ignores the complexity of the history of electric power systems. A starting point might arguably be the development of the self-excited dynamo in the 1860s

(Siemens, Wheatstone) which was efficient enough to make lighting and power systems (both AC and DC) practical, especially with better magnetic design in the 1870s (Gramme and others). That made it feasible for arc lighting, incandescent lighting, street railways, and other applications to become widely available. The AC transformer in the mid-1880s (Gaulard, Gibbs, Deri, Blathy, Zipernowski) made possible long distance transmission (though this could also be done, with less efficiency, for both AC and DC using motor-generator sets). Multi-phase AC operation, with which Tesla is associated, made transmission more efficient; it also gave us an AC motor. More recently, development of means for transforming DC has meant even more efficient means of long-distance transmission at very high voltages. Incidentally, Edison's role in this particular sequence is modest, being confined primarily to the design of a more efficient DC generator.

Tesla is given credit by Mr. Wagner for "every essential of radio." This statement is presumably based on his patents for basic tuning concepts. Eventually the US Supreme Court held that these, together with patents of John Stone Stone and Oliver Lodge, anticipated those of Marconi. But Tesla was ineffective in promoting any system of his own; and although it is intriguing so think that his work may have had a significant impact on others, good historical evidence of that is lacking. Starting from the experiments of Hertz, it was Marconi, Stone, deForest, Fessenden, Braun, among others, who developed practical radio technology. They were aware of some of the details of what Tesla was doing, but, as far as we are able to discern, they came to their own basic ideas independent of him. We can therefore marvel at Tesla's early understanding and articulation of some important concepts, but should beware of extending him credit for everything that followed.

Although the Smithsonian is a large enterprise, so also is the scope of our mandate. Our museums cover a vast range of history, culture and technology. Our resources--in space, money, collections, and personnel--are limited. Because we cannot address everything in our exhibits, we generally take one of two approaches. We may do a broad survey--as presently is the case with the "Information Age"--where individual subjects and people are given relatively brief mention. Thus, in that exhibit, in a section on wireless and radio, Tesla shares space with Hertz, Lodge, Marconi, deForest, Armstrong and others. Or we may do a smaller exhibit with a focus on a particular topic or person. Thus, in "Lighting a Revolution" we pay special attention to the incandescent lamp and to Edison. Other people are included, most notably those who were directly involved in that development--like Brush, Farmer, Thomson and Swan. We pay less attention to subjects like the competing gas light technology or the development of later distribution systems.

In "Lighting a Revolution," we try to describe the origins of Edison's work and also its impact. Our concern is with the light bulb. We do not claim, as Mr. Wagner suggests, that Edison "invented DC electricity" or that he "invented AC electricity and harnessed Niagara Falls." We argue that, because of the popularity of the incandescent lighting, there was an incentive to develop large-scale generating systems (at the same time granting that there were other factors, including street railways and electrochemical processes). We allow this

argument to lead us to say that the light bulb was a key element encouraging the creation of the Niagara Falls station, not that "he made the Niagara project possible." There is no claim that that Edison had anything directly to do with that station. Indeed, because we use Niagara Falls simply as an indication of America's commitment to a new electrical age, we, rightly or wrongly, don't describe it in any detail.

We do, however, include a Tesla motor and a nameplate from a Niagara Falls dynamo (we have the dynamo itself in our collections, but at 85 tons it would not easily fit in the exhibit). There is a picture of Tesla and a short biographical sketch (which admittedly are not prominently displayed).

Mr. Wagner notes that this exhibit was sponsored in part by the Thomas Alva Edison Foundation (actually through an International Committee for the Centennial of the Electric Light). We are very sensitive to the problems potentially associated with sponsorship, no matter where it comes from. Unfortunately, exhibits cost money, and it is necessary in most cases for us to seek outside help--which usually comes from people who are interested in the subject we want to treat. Realizing this, we insist that the money comes without strings, that we are the ones who determine what objects and what text are included. In this particular case I know that the Committee exercised no influence over the content of the exhibit.

In the catalog of the exhibit, mentioned by Mr. Wagner, we included the biographical sketch of Tesla described above. A revised edition specifically credits his patents as the basis for the Niagara generators.

Several years ago we organized a one-case exhibit for a special event at the National Academy of Sciences. Afterwards we displayed it for several months near the Niagara Falls nameplate mentioned above. It was well lit and was definitely not "in a darkened hallway next to the men's room" as stated in Mr. Wagner's article.

We have long been of Mr. Wagner's view that a more extended study of Tesla would be appropriate for an exhibit. Unfortunately, we have virtually no artifacts for such an effort beyond those already in "Lighting a Revolution." We obtained a small grant to explore the possibilities of a joint endeavor with the Tesla Museum in Belgrade, where virtually all the surviving Tesla material is preserved. They were excited about the possibilities and some tentative agreements were made. We hoped to have something together by 1993, the centennial of the Tesla displays at the Columbian Exhibition in Chicago. Tragic political events with which all of us are familiar intervened, and the project was put on hold. Recent developments hold promise that we may be able to begin again, assuming that further funding can be found.

I should add, however, that when we do such an exhibit it will not be a simple celebratory event of the sort Mr. Wagner seems to envision, any more than "Lighting a Revolution" or the "Information Age" are. This is a history museum. In it we try to promote a better understanding of people and events by presenting them in the context of their times. The complexity and richness of personalities like Tesla and Edison deserve no less. Meanwhile, when we make some modifications in the "Lighting" exhibit next year to include more recent developments in lamp technology, we plan to expand our treatment of AC systems, which will allow us to say more about Tesla's contributions.

For several years Mr. Wagner has been attempting to have Tesla better represented in this Museum. He is not alone in this desire (nor is Tesla the only person with advocates) and we appreciate his efforts. In the process he has no doubt encouraged a number of people to learn about this remarkable man. And he has encouraged us in our own researches.

I have been especially impressed by the fact that he has gotten his third-grade students to learn about Tesla. They have been articulate in their letters to the Smithsonian; and they have apparently been sufficiently persuasive to corporation presidents to elicit \$50 and \$100 contributions to pay for the casting of a bust of Tesla which had been sculpted by the father of one of the students. Certainly this is a good thing for them to do--as long as they realize that we may have good reasons for not automatically acceding to their demands that this bust then be exhibited at the Smithsonian..

As Mr. Wagner notes, the bust was offered to one or two other museums and then to us. The Smithsonian has a policy of not accepting busts unless they are made from life and we declined the offer. Furthermore, there was no particular reason to accept it, since we have no gallery of inventors or other context for it.

We do have a bust of Edison, as Mr. Wagner mentions. It was made from life, by a phrenologist who wanted to examine the bumps and hollows on Edison's head--making it doubly interesting. It is exhibited (not near Tesla's motor) as part of an attempt to demonstrate how Edison had excited public admiration even before he started work on the electric light; this was an important factor when he looked for funding for his investigations.

In sum, there is no vendetta or conspiracy within the Smithsonian against Nikola Tesla. We currently have an exhibit featuring Edison's electric light--because we have excellent material and an interesting story to tell. Circumstances in the future may lead us to treat other Americans of that pioneering generation, like Charles Proteus Steinmetz, or Elihu Thomson, or William Stanley. We had specific plans to do so for Nikola Tesla. At the moment these have been thwarted, but we hope we will be able to resume the endeavor before long.

#### JOHN W. WAGNER'S REBUTTAL TO BERNARD S. FINN'S REMARKS

I believe Mr. B.S. Finn is a fine gentleman. He is also skillful with words; I was almost beginning to believe him. Nevertheless, close examination of his rebuttals reveals more than a casual reader would notice. Please consider the following analysis:

FINN: I. The historical role of Tesla. There is little question but that Tesla was a genius, whose fertile mind generated a number of ideas at the cutting edge of the electrical technology of his day.

WAGNER: Dr. Finn creates the impression of giving praise for Tesla's work. Nevertheless, close examination of his statement shows that he does not cite any of Tesla's accomplishments. Instead, he states that Tesla "generated a number of ideas at the cutting edge of electrical technology." In short, Dr. Finn lacks specificity...not only in his letter but in his displays.

FINN: Tesla was a loner. He had difficulty working with other engineers--whether in explaining his ideas to them or in considering their criticisms.

WAGNER: Many great historical figures were loners. Galileo, Copernicus, Van Gogh, and Goddard were laughed at and even persecuted for their ideas, yet they persevered in their singular direction. Did this trait make them any less worthy of recognition?

FINN: He had difficulty working with other engineers--whether in explaining his ideas to them or in considering their criticisms. The unfortunate consequence of this was that his impact on practical technical developments was severely impaired.

WAGNER: Dr. Finn fails to consider the opposite...that the engineers created the problem by their faulty comprehension of his work. Dr. Finn also fails to explain exactly how "practical technical developments were severely impaired." Again, specificity is lacking.

FINN: This does not make him less interesting; indeed, for those of us who are concerned with the roots of creativity it makes him, if anything, more so. But it does mean that we should be careful in what we claim were the consequences of his activities.

WAGNER: We are in agreement. Tesla was a more interesting scientist than many of his contemporaries, and he was also at the root of creativity. Indeed, "we should be careful in what we claim were the consequences of his activities." The scientists who comprised the Electrotechnical Conference in Munich were no doubt mindful of this admonition when they elevated his name to stand alongside only 14 other great discoverers worldwide.

FINN: Tesla's concept of the rotating field was clearly innovative and was recognized as such by George Westinghouse when he negotiated to purchase the patents in 1888/9. But to claim, in Mr. Wagner's words, that "he created the polyphase alternating current system of motors and generators that powers our world" ignores contemporary European systems that relied on the work of Pacinotti, Brown, Dobrowolsky, Wenstrom, and also Westinghouse engineers who, with Tesla's help, translated those patents into practical electrical technology.

WAGNER: Dr. Finn is correct in stating that "Tesla's rotating magnetic field was clearly innovative," but to compare his work with Westinghouse engineers and other technologists is like comparing DNA to crankshafts. While acknowledging that George Westinghouse recognized Tesla's great discovery and bought his patents, Dr. Finn fails to acknowledge that Thomas Edison fought the adoption of the rotating magnetic field principle, the central part of Tesla's polyphase AC system. Further, he does not explain why Mr. Edison's failed entrepreneurial experiment in promoting DC technology is the vanguard of the Smithsonian's electrical display.

FINN: ...It also ignores the complexity of the history of electric power systems. A starting point might arguably be the development of the self-excited dynamo in the 1860s (Siemens, Wheatstone) which was efficient enough to make lighting and power systems (both AC and DC) practical, especially with better magnetic design in the 1870s (Gramme and others). That made it feasible for arc lighting, incandescent lighting, street railways, and other applications

to become widely available. The AC transformer in the mid-1880s (Gaulard, Gibbs, Deri, Blathy, Zipernowski) made possible long distance transmission (though this could also be done, with less efficiency, for both AC and DC using motor-generator sets). Multi-phase AC operation, with which Tesla is associated, made transmission more efficient; it also gave us an AC motor. More recently, development of means for transforming DC has meant even more efficient means of long-distance transmission at very high voltages.

WAGNER: Dr. Finn continues to identify evolutionary anomalies that occur throughout all scientific investigations. They do not remain unmodified very long because they are not practical. Therefore, it is only logical to ignore the complexities of interim evolutionary phases that occurred in electrical investigations; the only place they belong is in laboratory notebooks. Tesla's polyphase AC system has been the standard of the world for more than 100 years. Dr. Finn's statement that Tesla was "associated" with multi-phase AC operation is another example of an understatement. Tesla created the "multi-phase AC operation," which is still in use today. Further, it was Tesla's AC motor that provided the real impetus for the explosion in industrial development throughout the world. Dr. Finn has not acknowledged this fact, nor has he evaluated its impact on civilization. While Messrs. Gaulard, and Gibbs are credited with the invention of the transformer, they did not envision, nor did they receive patents for an entire system of polyphase AC transmission from the power station to its ultimate destination.

FINN: Incidentally, Edison's role in this particular sequence is modest, being confined primarily to the design of a more efficient DC generator.

WAGNER: Mr. Edison's role in power technology was not even modest; it did not exist! Zenobe T. Gramme and Friedrich von Hefner-Alteneck had perfected the DC generator in 1872, long before Edison borrowed their technology to make his Pearl Street generating station. Later, Tesla made improvements in DC transmission when he worked for Edison. Then when Edison failed to compensate Tesla financially for his work in this area, Tesla left Edison's employ.

FINN: Tesla is given credit by Mr. Wagner for "every essential of radio." This statement is presumably based on his patents for basic tuning concepts. Eventually the US Supreme Court held that these, together with patents of John Stone Stone and Oliver Lodge, anticipated those of Marconi. But Tesla was ineffective in promoting any system of his own; and although it is intriguing so think that his work may have had a significant impact on others, good historical evidence of that is lacking. Starting from the experiments of Hertz, it was Marconi, Stone, deForest, Fessenden, Braun, among others, who developed practical radio technology. They were aware of some of the details of what Tesla was doing, but, as far as we are able to discern, they came to their own basic ideas independent of him. We can therefore marvel at Tesla's early understanding and articulation of some important concepts, but should beware of extending him credit for everything that followed.

WAGNER: Dr. Finn's interpretation of my phrase, "every essential of radio," is flawed. In my first article on radio, (December, 1995,73, Amateur Radio Today) that phrase was clarified by another phrase, "embryonic commencement of our present day technology." I made a clear distinction between science and technology. Dr. Finn's analyses and focus is usually based on technology. I disagree with Dr. Finn's portrayal of Hertz, linking him with known technologists. Dr. Hertz's work is clearly in the realm of science. Before technology can take over, an "embryonic commencement" must first be established. Maxwell, Lodge, Stone, and Tesla's work was also in the realm of science, not technology. It was their work that created that embryonic commencement of what we know as radio. Marconi, Fessenden, Braun, Alexanderson, and others should be credited with the development of radio...not its creation.

FINN:...suggested creating a future extensive exhibit to expand his treatment of AC systems.

WAGNER: Even a casual observation of the electrical displays at NMAH clearly points to the fact that Thomas Edison is Dr. Finn's personal hero. Further, examination of data bases shows that he has written no fewer than ten papers and articles on the subject of Edison.

Noting the history of the AC/DC "war" that has been written about in numerous articles and biographical accounts of Tesla--a war of ideas between Tesla advocating AC and Edison tenaciously resisting its introduction, clinging desperately to DC, is it reasonable to assume that Dr. Finn could provide objective oversight for such an exhibit at the Smithsonian's NMAH?

Many people believe that either:

- (1) Another competent curator-historian should be appointed for such an exhibit, or
- (2) await for Dr. Finn's retirement before starting the exhibit.

### III. CONCLUDING COMMENT

Great men think profoundly, say great words, and make great contributions to humanity. Certainly Nikola Tesla was one of these great men as evidenced by what he thought, what he said, and what he accomplished for the greater good of everyone. One statement he made stands out in my mind, which serves to illustrate the degree of commitment Tesla had as a man and as a scientist: *"My paramount desire today, which guides me in everything I do, is an ambition to harness the forces of nature for the service of mankind."* Tesla, in his lifetime, did accomplish his goal and we are all the better and richer for it. If any man serves as a model for emulation, it is Nikola Tesla, but if somehow we lose track of his life story, then we will become the poorer.

My students and I are committed to our efforts of reintroducing Tesla to the academic community as long as we are able. Nevertheless, we realize that we can not do this job without the help of others; therefore, we beseech everyone who understands and appreciates what we are doing to give us the support we need to continue.