

## BATTLE OF THE CURRENTS

A play by Jon Lipsky  
About Nicola Tesla  
Adapted from a full-length play: "Electrifying Acts"

(*Houseman* is standing in the grassy area in front of the New York Public Library. He is dressed comfortably, 40's style, in an old overcoat, suit and tie. He wears a hat.)

### HOUSEMAN

(*Holding a tuning fork*)

Resonance.

(*Hits tuning fork*)

Miraculous.

(*Hits tuning fork, places it on the park bench; we hear the tone amplified.*)

(*To himself*)

A small vibration makes a big vibration.

(*as Tesla*)

A small vibration makes a big vibration.

(*Pause*)

Tesla said that. Nikola Tesla. First time I ever heard the word "resonance." He was telling this really funny story about his friend, Twain, Mark Twain.

(*Luring a pigeon onto his hand*)

C'mere girl. C,Mon...

(*He continues this while talking to the audience*)

Those were the days. The toasts of the town would descend on Tesla's laboratory -- before it burned down, now that was a tragedy -- descend like pigeon's to the roost to see Tesla's latest toys.

(*Pigeon makes it onto his hand*)

(*Hits the tuning fork, luring pigeons*)

Good girl, good girl.

(*Feeds the pigeon*)

Everyone was very curious about Tesla's experiments with resonance because he had just caused an earthquake in downtown Manhattan. Really! See he was experimenting with the resonating frequency of the earth. That's right. Terra Firma. All his life he was convinced he could transmit energy not only through the air but through the earth. So he created "a relatively simple oscillating box" - I don't know exactly how it worked -- but it jiggled at a given frequency that could be manipulated -- and one day he clamped this box to one of the beams in his basement. And of course the beam began to oscillate too in sympathy. Harmonically. Well, unbeknownst to Tesla the experiment worked a little too

well. The frequency resonated with the basement floor, which sent small shock waves through the neighborhood causing a number of water pipes to burst and the local constabulary to descend on his lab.

Oh, my, Oh dear.

*(Salutes charmingly to the Constables)*

Well of course he was always so charming -- he had no trouble mollifying the authorities, But I think it was one of the first instances which led to his reputation as a mad scientist.

*(To the audience)*

One evening Twain was visiting -- this was long before my time, everyone was in bow tie and tails, there was none of this cheap informality we have now -- certainly not the slovenliness we would come to expect from someone like Edison -- no, it was...

*(Searching for the right analogy)*

It was like going to the opera. Tesla, in his laboratory, had set up his little oscillating box on a platform, see, big enough for a man to stand on. Because he believed that resonance could have a health benefit -- and Twain being curious about everything of course had to stand on the box and try it out. "Well this is quite nice" said Twain, getting all tingly. "Yes, Twain, but you don't want to stay on it too long because it has a very powerful medicinal effect." "I know," says Twain "this is marvelous. The sensations! The vibrations! I've never felt better in my life!" "Yes, but Twain, I simply must repeat my caution to you," says Tesla, beginning to laugh -- at which point, Twain turns white, holds his stomach and says: "could you direct me at once to the facilities."

*(Laughing)*

It seems the oscillating box had a very powerful medicinal effect on the bowels.

*(Laughing)*

Oh, Tesla, he did like to have some fun.

*(Hits the tuning fork: A pigeon comes up to Houseman)*

Here we go. That's my girl.

*(He cradles the pigeon)*

So what came of these experiments with resonance? Oh, nothing much. Just radio, and radar, and cell phones and microwaves -- and *your* satellite TV and remote control guidance systems and eventually just about every other form of transmission of electromagnetic energy. Tesla was the *first* with his Tesla coil.

*This coil...*

*(Goes to the coil. Turns it on.)*

makes an electrical field resonate just like his oscillating box made Manhattan resonate!

*(Pause)*

Did *you* know that Tesla invented radio? Really! Most people still think it was Marconi. It wasn't Marconi -- Well, it *was* Marconi. But Marconi couldn't have

done it without the fundamental contributions of Tesla.

No, it's Tesla who first imagined that you could send energy, power, "intelligence itself," racing through the air, through empty space, at the speed of light, by simply generating an electric field and picking up its vibration through the principles of resonance.

*(He strikes the tuning fork.)*

Magic! Pure magic! But the Magician? He's forgotten. His accomplishments: vanquished by the arrow of time.

*(Pause)*

I think Edison had something to do with the eclipse of Tesla's star.

See: Tesla and Edison were at odds over what was the best kind of current to tap the power of Niagara Falls: Alternating or Direct Current.

*(To the audience)*

What kind of current do you use in your house today? Do you know?

*(Audience member says: "Alternating current?")*

That's right. And guess who invented alternating current?

*(Audience member says: "Tesla?")* That's right, Nikola Tesla. So how come most people don't know his name?

*(Pause)*

Oh, don't misunderstand me: there were reasons to dismiss him as an eccentric -- he was weird. He wouldn't shake hands for fear of germs. He needed exactly twelve napkins to wipe his silverware before every meal. And his hotel rooms -- he always lived in hotel rooms -- had to be divisible by three. Like room 3327 at the New Yorker Hotel.

That's where I first met him. At the New Yorker.

*(He knocks on Tesla's door. He tips his hat.)* Charles Houseman, sir.

At the end of his life in 1943. When I was still a callow youth -- I took care of his pigeons.

*(We hear: A flock of pigeons descend onto Houseman's outstretched arms.)*

Yes, if he were too busy or infirm to come here to this bench at the Public Library, I would feed his pigeons and bring the sick ones, the injured ones, the special ones to his room where they held a place of honor. I tell you:

he had almost a mystical relationship to his precious birds.

*(We hear: The pigeons fly off.)*

And visions! Oh, yes, Tesla had visions. Not like Edison.

If Edison were here he would make the distinction between the two types of genius:

*(As Edison)*

"Invention has nothing to do with vision," he would say. "Invention has everything to do with observation."

"Genius" he is famous for saying "is 1 percent inspiration and 99 percent perspiration."

*(As Houseman)*

Well, this coming from a man who went through 10,000 possibilities before he figured out the right compound to make a filament for his incandescent bulb. He tried platinum. He tried cat's whiskers. He sent expeditions to the Far East searching for rare bamboo. Then he settled on the commonplace: carbonized cotton thread.

Tesla found this amusing.

*(As Tesla)*

He said: "If Edison had to find a needle in a haystack, he would proceed to go through that haystack straw...by straw..."

*(As Houseman)*

While Tesla, of course, would figure out a way to pull that needle out with a magnet.

*(Demonstrates with calm elegance.)*

My point is...

*(Pause; to the pigeons)*

What's my point?

*(Remembers)*

My point is that, where Edison relied on observation, Tesla had his visions. Really. The visions were so strong sometimes as a youth he had to put his hand through them to see if they were real or not.

*(Sound: Rumble of thunder.)*

His greatest vision?

*(Sound: Jacob's Ladder)*

-- happened one day in Budapest when he was grappling with a generator designed by none other than the famous Alva Edison. He told me:

*(As Tesla)*

"I had to find a way to eliminate the sparking commutator and simplify the machine. It became a question of life and death.

*(Pause)*

And then one day at sunset, a friend had finally coaxed me out into the open air I started reciting a glorious passage from Goethe's Faust:

*(Reciting)*

-- "to follow, follow, soaring..."

-- "to follow, follow, soaring..."

I drew a picture of it in the dirt!

*(As Houseman)*

A picture of a magnets "following" one another -- around a wire.  
And that's how Tesla invented polyphase alternating current.

*(Imitating the drawing)*

By setting up three rotating magnets -- three overlapping magnetic fields. The effect on the electrical current was the same as if you set three moons above the earth to create three overlapping tides. "Follow, follow soaring!"

*(Lights change)*

And that's what started his fight with Edison who wanted nothing to do with alternating current. Edison cut his teeth and fed his gadgets on direct current.

*(Demonstrating)*

AC -- where the electrons move back and forth through the wire like the ocean tides only many times a second. DC -- where the electrons move in only one direction through the wire like water flowing in a river. Two systems of power. The battle of the generators. The War of the Currents.

*(Sound: war)*

See:

*(Demonstrates)*

Here you have New York City with millions of people hungry for power.

Here you have Niagara Falls with torrents of power hungry for people.

*(Demonstrates)*

Tesla realizes Niagara Falls is a source of cheap power if he can transport it. Edison doesn't want his plan for electrifying New York, which relies on power stations every fifty miles, to be undercut by Tesla.

Tesla invents the transformer, which allows alternating current to be transported cheaply over vast distances.

*(Demonstrates)*

But Edison has Tammany Hall -- the New York political machine -- *and* the business leaders in his *pocket*.

Tesla gets George Westinghouse -- inventor, manufacturer, president of Westinghouse Electric Company -- to back *him*. And that's where things got nasty.

Millions were at stake. Edison was out to crush his rival.

His plan? To prove that ...

*(as Edison)*

"alternating current is too dangerous for your home!"

*(As Houseman)*

He puts on demonstrations: he electrocutes a cat.

*(Sound. Houseman winces.)*

He electrocutes a dog.

*(Sound. Wince)*

He electrocutes a horse!

*(Big sound. Big wince.)*

I'm not making this up -- he killed a horse just to make a point.

"No no no!" cries Tesla, "alternating current is perfectly safe if proper

precautions are taken!"

But Edison urges use of alternating current for public executions in the electric chair. He calls it: "getting Westinghoused."

The battle comes to a head! 1893! The Chicago World's Fair!  
How will they light the Columbian Exposition that will usher in the 20th Century -- Thomas Edison's direct current or Tesla's alternating current? Everyone wants to know!  
President Grover Cleveland will throw the switch -- the first time an American President has ever been allowed, by his own person, to throw an electric switch.  
*(Pause)*

And the winner is: Nikola Tesla's polyphase alternating current! And you should have seen Tesla shine. There he was at his own show -- having lit the fair with his own electric system -- in coat and tails, performing in the Hall of Electricity the mysteries of the universe: Phosphorescent globes; ethereal light; crackling sheets of high frequency discharges; above the stage, a thin corona of violet light, lightning dancing around the room.

*(As Tesla)*

"And now!! Ladies and gentlemen!!! As I turn up the voltage, I, Nikola Tesla, shall conduct the primal force of nature.

And as a hundred thousand volts of current course through my body (Maybe also puts hand into spark), I, a conductor with no wires attached will light this brilliant fluorescent bulb.

*(Does so. Bows)*

But what most people remembered from the Hall of Electricity was a tower of Edison lamps eighty feet high capped by one enormous incandescent bulb.

*(Applause for Edison.)*

Edison went into his dotage on the coattails of The Golden Jubilee in 1929 -- the fiftieth anniversary of his creation of the incandescent bulb. For this event, his friend Henry Ford had his Menlo Park laboratory reconstructed down to the floorboards.

They even trucked in that ugly New Jersey clay to give the place an authentic look. So there they were -- stepping back into this time machine -- Thomas

Edison, surrounded by Herbert Hoover and other dignitaries, receiving congratulations from Albert Einstein. All over the country folks dimmed their lights in Edison's honor.

*(Pause)*

And what of Tesla? Tesla spends his last days alone in a hotel room, surviving on warm milk and nabisco biscuits. From time to time he announces a new

scientific breakthrough -- his death ray, for instance, a weapon of war to end all wars -- but these are generally met with ridicule. His likeness appears in a Superman comic in the guise of a mad scientist.

After his death, in 1943, the government does swoop down on his papers to see if there is any technology that can help with the war effort, but as far as *we* know nothing comes of that, and his reputation slips into oblivion.

Until now... Now, when I'm old -- an old man looking back on his glory days -- now, at last Tesla is beginning to get the recognition he deserves -- movies, books, plays about him -- but the man himself will never know that.

*(Feeds pigeons)*

As for me -- I continue to call pigeons with my tuning fork.

*(Hits the bench with tuning fork)*

And when they come I feed them as I did in days gone by, and through a kind of resonance I don't quite understand, I always think of Tesla and how fame is as ephemeral as the flight of birds.

*(We hear the flight of pigeons. Houseman watches them go.)*

*the end*

*Museum Of Science*

*The Genius of Tesla and  
Edison*

Lipsky date \@ "M/d/yy" 5/18/01