

Twitter Thread by CBG-san



CBG-san

@OnlyNakedTruth



The world is today at equilibrium. Battery operated devices use DC current and the misc household and industrial appliances use AC current

But almost 140 years ago, that was not the case. A fierce battle was fought between two scientists Tesla and Edison over it. #CBG_Thread 1/n

THE CURRENT WAR
THE TALE OF AN EARLY TECH RIVALRY

DC

DIRECT CURRENT

The flow of electricity is in one direction only. The system operates at the same voltage level throughout and is not as efficient for high-voltage, long distance transmission.

Direct current runs through:

- Battery-Powered Devices
- Fuel and Solar Cells
- Light Emitting Diodes

"[TESLA'S] IDEAS ARE SPLENDID, BUT THEY ARE UTTERLY IMPRACTICAL."

- THOMAS EDISON

THOMAS EDISON VS. NIKOLA TESLA

You would have never found two geniuses so spiteful of each other beyond turn-of-the-century inventors Nikola Tesla and Thomas Edison. They worked together—and hated each other. Let's compare their life, achievements, and embittered battles.

AC

ALTERNATING CURRENT

Electric charge periodically reverses direction and is transmitted to customers by a transformer that could handle much higher voltages.

Alternating current runs through:

- Car Motors
- Radio Signals
- Appliances

"IF EDISON HAD A NEEDLE TO FIND IN A HAYSTACK, HE WOULD PROCEED AT ONCE... UNTIL HE FOUND THE OBJECT OF HIS SEARCH. I WAS A SORRY WITNESS OF SUCH DOINGS, KNOWING THAT A LITTLE THEORY AND CALCULATION WOULD HAVE SAVED HIM 90 PERCENT OF HIS LABOR."

- NIKOLA TESLA

WAR OF CURRENTS OFFICIALLY SETTLED

In 2007, Con Edison ended 125 years of direct current electricity service that began when Thomas Edison opened his power station in 1882. It changed to only provide alternating current.

NOBEL PRIZE CONTROVERSY

In 1915, both Edison and Tesla were to receive Nobel Prizes for their strides in physics, but ultimately, neither won. It is rumored to have been caused by their animosity towards each other.

EDISON FRIES AN ELEPHANT

In order to prove the dangers of Tesla's alternating current, Thomas Edison staged a highly publicized electrocution of the three-ton elephant known as "Topsy." She died instantly after being shocked with

FALLING OUT

Edison promised Tesla a generous reward if he could smooth out his direct current system. The young engineer took on the assignment and ended up saving Edison more than \$100,000 (millions of dollars by today's standards). When Tesla asked for his rightful compensation, Edison declined to pay him. Tesla resigned shortly after, and the elder inventor spent the rest of his life campaigning to discredit his counterpart.

LATE BLOOMER

Thomas Edison, the youngest in his family, didn't learn to talk until he was almost 4 years old.

NOTABLE INVENTIONS

- Incandescent light bulb, phonograph, cement making technology, motion picture camera, DC motors and electric power
- 1,093 NUMBER OF US PATENTS
- 0 NUMBER OF NOBEL PRIZES WON
- 1 NUMBER OF ELEPHANTS ELECTROCUTED

EDUCATION

- Home-schooled and self-taught
- Mass communication and business
- Wizard of Menlo Park
- Wizard of the West

DEATH

- 1931—Passed away peacefully in his New Jersey home, surrounded by friends and family
- 1943—Died lonely and in debt in Room 3327 at the New Yorker Hotel

WAR OF CURRENTS: ELECTRICAL TRANSMISSION IDEA

- DC (Direct Current)
- AC (Alternating Current)

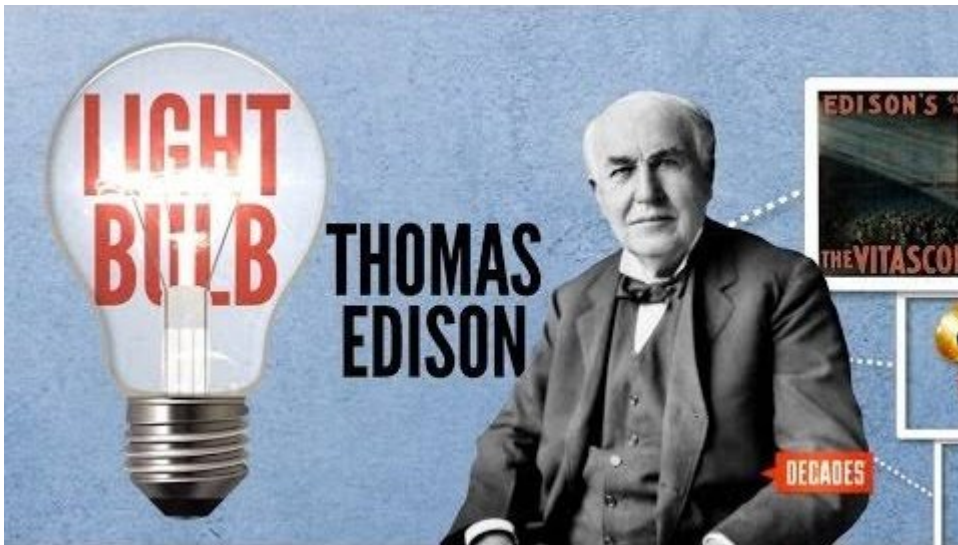
METHOD

- Trial and error
- Getting inspired and seeing the invention in his mind in detail before fully constructing it

TECHNIQUES

- Edison: trial and error
- Tesla: Tesla coil - resonant transformer circuit, radio transmitter, fluorescent light, AC motors and electric power generation system

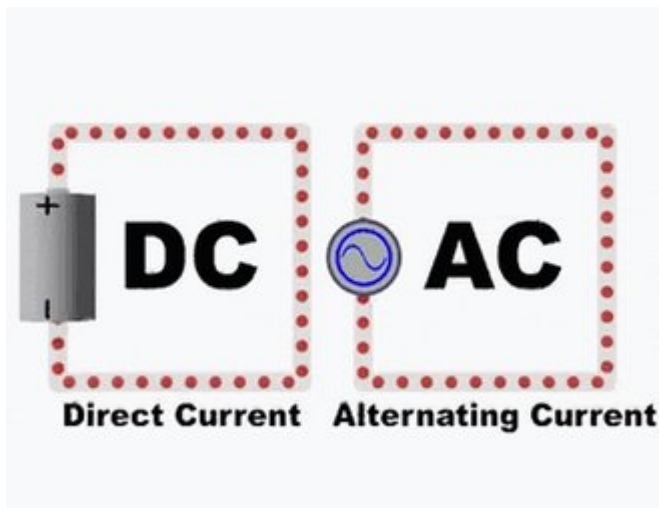
Thomas Edison, a prolific inventor, changed the course of history with the invention of electric bulb in 1870s. It opened up a new market hitherto unknown. 2/n



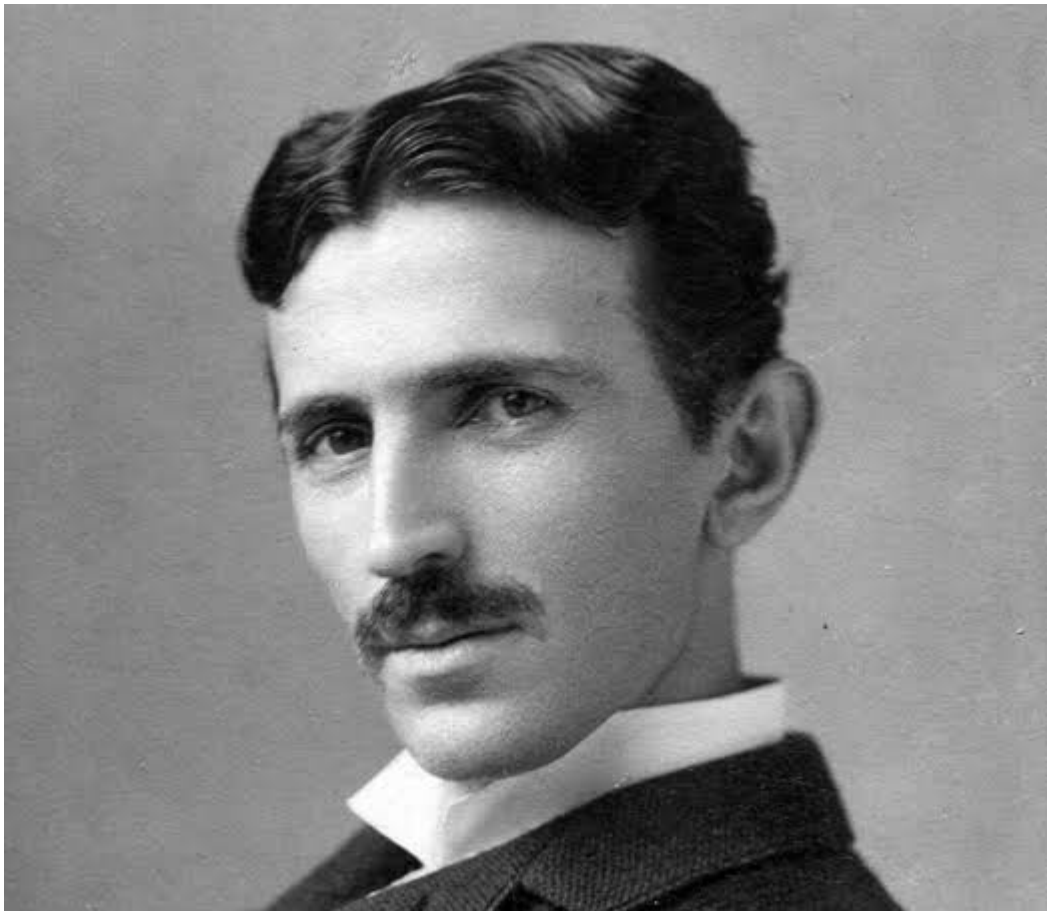
Edison , backed by J P Morgan, founded a new company Edison General Electric (now GE) to make motors, appliances, wires etc to develop and service this new market. 3/n



Interestingly, all appliances were based on Direct Current (DC) - similar to what you get from batteries these days. Current flows in one direction only, unlike Alternating Current (AC) - such as 220V supply at home these days. 4/n



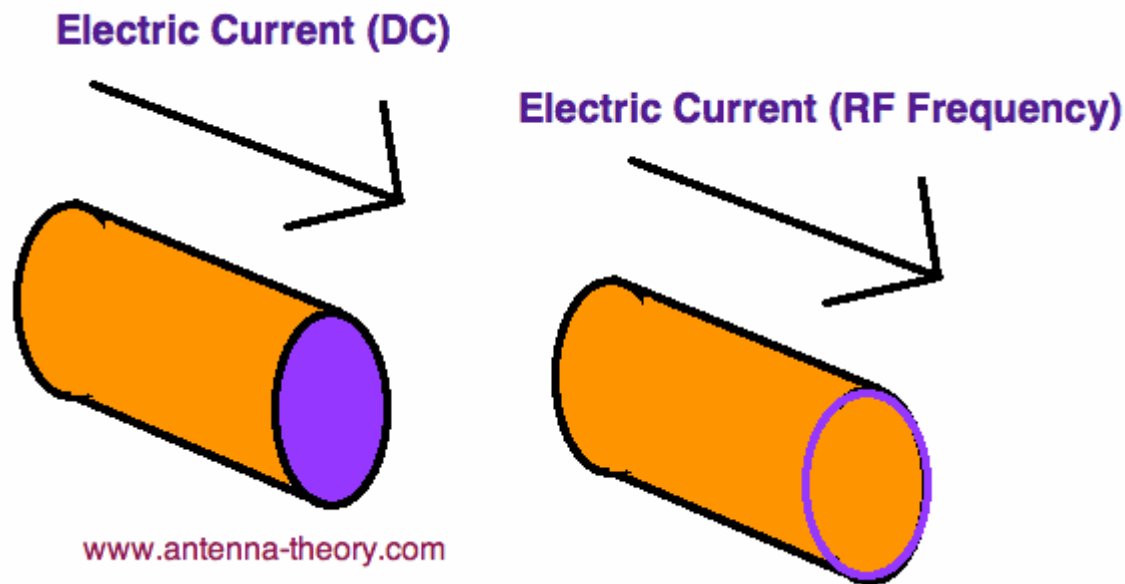
Nikola Tesla immigrated to US in 1884 to work for Edison as Electric Engineer for a salary of \$100. Tesla was a maverick with novel ideas. He wanted to create an efficient arc lighting and AC motor. Edison however was too arrogant to be receptive to any ideas. 5/n



Eventually Tesla left Edison in 6 months and perfected his AC system. George Westinghouse, Edison's rich rival, bought his patents and backed him for creating this more efficient AC polyphase system. 6/n



DC suffers from higher transmission losses over long distances. In AC, current flows only shallowly over the surface of wire due to a phenomenon called skin effect leading to lesser loss in transmitting power. 7/n



Upset with Tesla's success, Edison teamed up with Harold Brown, inventor of Electric Chair. They argued that body can tolerate even 1000V DC but even 300V AC is lethal. They publicly electrocuted a dog in Brown's Electric Chair with AC current leading to bad press for AC 8/n

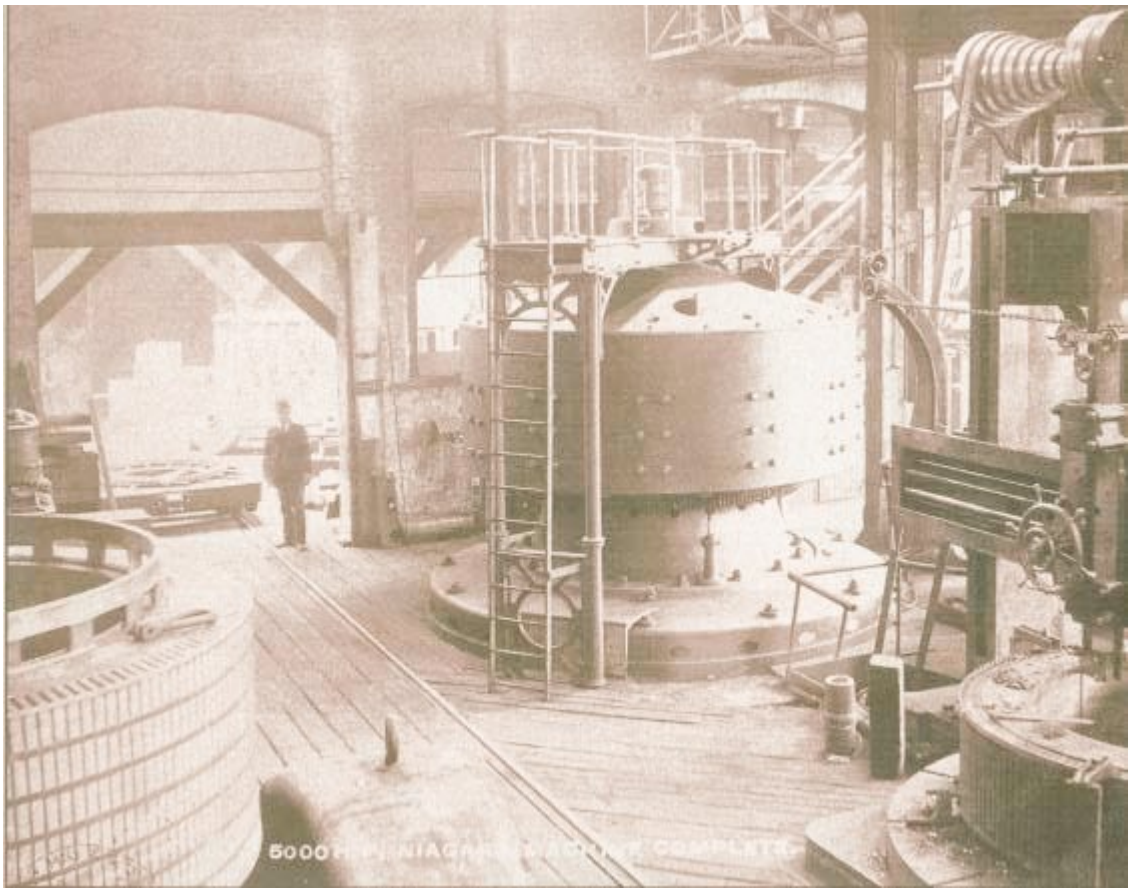


Tesla and Westinghouse got their big break when they illuminated the entire Chicago World Fair in 1893.

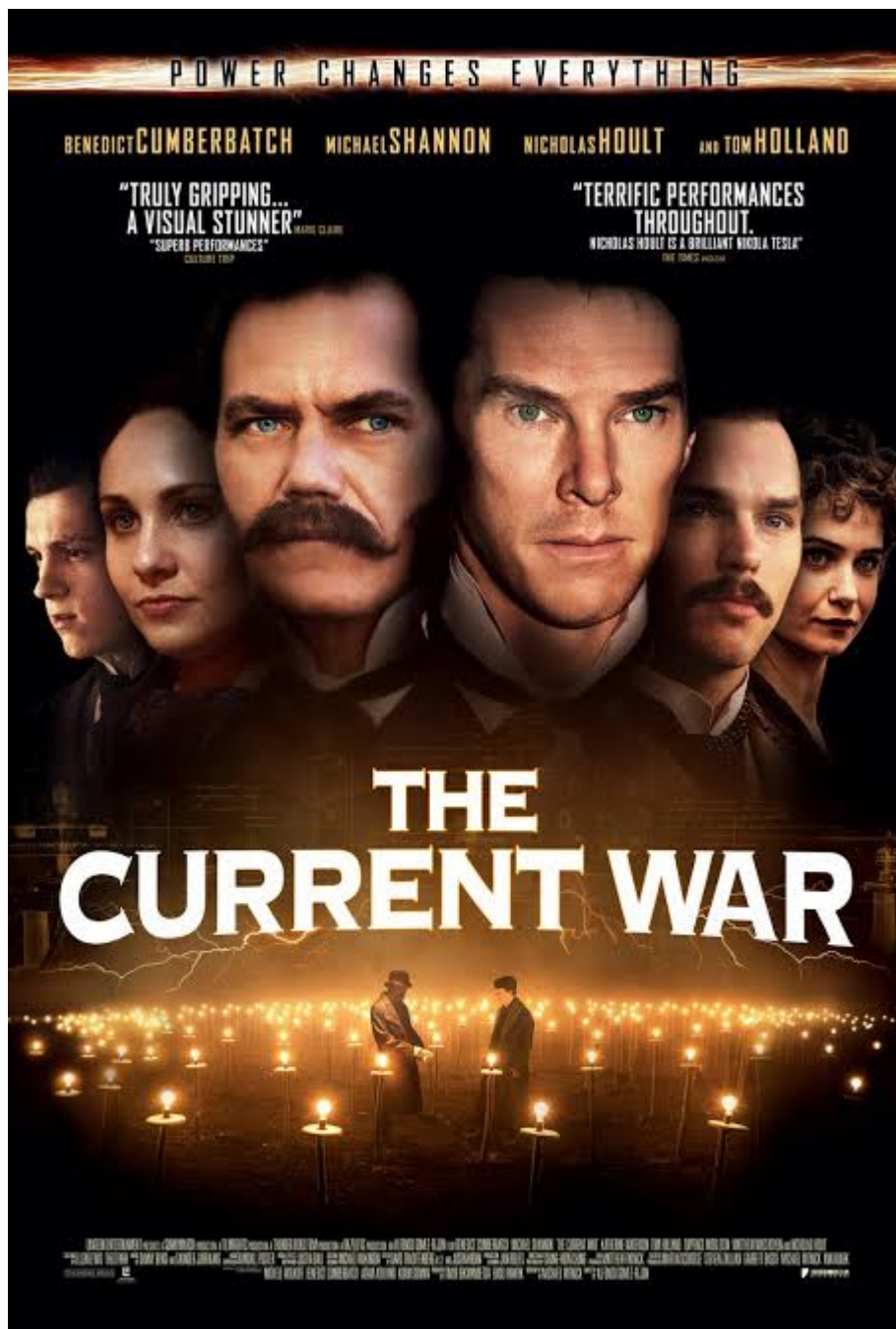
The dazzling display left everyone bewitched. 8/n



This was followed by their win to create the first hydro electric power plant at Niagra in 1895. This win pretty much settled the war in favour of AC transmission systems. With that Tesla and Westinghouse had won a bitterly fought battle. 9/n



This fascinating story is also captured in a 2017 Hollywood movie, Current War.
10/n



Eventually, Edison's own company adopted the AC current system and Edison sold all his shares of Edison General Electric which then became GE. Tesla certainly won this war, fair and square. n/n



HERE DIED, ON JANUARY 7, 1943.
AT THE AGE OF 87. THE GREAT
YUGOSLAV-AMERICAN SCIENTIST-INVENTOR,
NIKOLA TESLA, WHOSE DISCOVERIES
IN THE FIELD OF ALTERNATING ELECTRIC
CURRENT ADVANCED THE UNITED STATES
AND THE REST OF THE WORLD INTO THE
MODERN INDUSTRIAL ERA.

YUGOSLAV-AMERICAN BICENTENNIAL
COMMITTEE, JANUARY 7, 1977.