Timeline Theatre Company

TESLA'S LETTERS

by Jeffrey Stanley
directed by Nick Bowling

STUDY GUIDE

prepared by
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About Jeffrey Stanley and *Tesla's Letters*

Jeffrey Stanley's semi-autobiographical war-time drama *Tesla's Letters* premiered to rave reviews in New York in 1999 at The Ensemble Studio Theatre.

The script was published in 2000 by Samuel French, which named the play one of the 10 best dramas of 1999. The play received its European premiere at the Edinburgh Fringe Festival in Scotland, United Kingdom, in August 2000, and its regional premiere at the Mill Mountain Theatre in Roanoke, VA, in January 2001. It has been produced by numerous theaters and read in college and high-school classrooms around the world.

Based on Stanley's experiences in Belgrade, where he traveled in 1997 to research the life of Serbian inventor Nikola Tesla, the play follows an American grad student who finds herself reluctantly drawn into the ethnic rivalries that caused the breakup of Yugoslavia in the 1990's.

Stanley's other plays include *Medicine, Man*, commissioned by the Mill Mountain Theatre; *Fishing with Tony and Joe*, commissioned by The Ensemble Studio Theatre; and *The Golden Horseshoe: A Lecture on Tragedy*, an autobiographical comedy that Stanley directed and in which he also performed.

He has been hired to write screenplays for several independent companies. He has been a guest writer in *The New York Times* and *Time Out New York*, and he was a senior advisor for *The End That Does* (Equinox Books, 2006), produced by Boston University's Center for Millennial Studies.

Stanley is also a theater director, with credits that include a New York revival of Sam Shepard's political comedy *The God of Hell*. He has been a resident of the artists' colony Yaddo in Saratoga Springs, NY and a Copeland Fellow at Amherst College in MA.

His screenwriting awards include the Alfred P. Sloan Foundation Screenplay Award, the New York Picture Company Award for Best Dramatic Screenplay, the Tennessee National Screenwriting Competition, and the Laurel Entertainment Award for Screenwriting Excellence. His award-winning short film *Lady in a Box*, starring Sarita Choudhury, marked his film-directing debut.

Stanley holds a master of fine arts degree from the dramatic writing program at New York University's Tisch School of the Arts, where he studied under playwright David Ives. He also received his bachelor of fine arts degree from Tisch, in film and television production with a minor in cultural anthropology.

Stanley has taught at NYU, the Imaginary Academy summer film workshop in Istria, Croatia, sponsored by the Soros Foundation, and mediabistro.com, an online community that offers job postings and classes for those in the magazine, television, film, radio, or publishing industry.

Yugoslavia — 1991

Population per republic:

Serbia — 9,800,000

Croatia — 4,800,000

Bosnia — 4,400,000

Macedonia — 2,000,000

Slovenia — 1,700,000

Montenegro — 584,000

Percentages of total Yugoslav population:

Serbs — 36%

Croats — 20%

Muslim Slavs — 10%

Albanians —9%

Slovenes — 8%

Macedonian Slavs — 6%

"Yugoslavs" (people who declined to declare themselves members of any specific ethnic group) — 3%

Montenegrins — 2%

Hungarians — 2%

The 6 Independent Nations after the break-up of Yugoslavia

CROATIA
Independence: June 25, 1991
Capitol: Zagreb
Population: 4,493,312 (July 2007 est.)
Religions: Roman Catholic 87.8%, Orthodox 4.4%, other Christian 0.4%, Muslim 1.3%, other and unspecified 0.9%, none 5.2% (2001 census)
Size: Slightly smaller than West Virginia

SLOVENIA
Independence: June 25, 1991
Capitol: Ljubljana
Population: 2,009,245 (July 2007 est.)
Religions: Catholic 57.8%, Muslim 2.4%, Orthodox 2.3%, other Christian 0.9%, unaffiliated 3.5%, other or unspecified 23%, none 10.1% (2002 census)
Size: Slightly smaller than New Jersey

MACEDONIA
Independence from Yugoslavia: September 8, 1991
Capitol: Skopje
Population: 2,055,915 (July 2007 est.)
Religions: Macedonian Orthodox 64.7%, Muslim 33.3%, other Christian 0.37%, other and unspecified 1.63% (2002 census)
Size: Slightly larger than Vermont

BOSNIA AND HERZEGOVINA
Independence from Yugoslavia: March 3, 1992
Capitol: Sarajevo
Population: 4,552,198 (July 2007 est.)
Religions: Muslim 40%, Orthodox 31%, Roman Catholic 15%, other 14% (2002 census)
Size: Slightly smaller than West Virginia

MONTENEGRO
Independence from Yugoslavia: June 3, 2006
Capitol: Podgorica
Population: 684,736 (July 2007 est.)
Religions: Orthodox, Muslim, Roman Catholic (breakdown unavailable)
Size: Slightly smaller than Connecticut

SERBIA
Independence from Yugoslavia: June 5, 2006
Capitol: Belgrade
Population: 10,150,265 (July 2007 est.)
Religions: Serbian Orthodox 85%, Catholic 5.5%, Protestant 1.1%, Muslim 3.2%, unspecified 2.6%, other, unknown or atheist 2.6% (2002 census)
Size: Slightly larger than South Carolina

History of Yugoslavia

The Ottoman Empire

The Turkish Ottoman Empire seized areas of the Balkan Peninsula during the 15th Century. The Turks had been conquering parts of Europe since 1354, and after much turmoil, they gained control of Serbia in 1459 and held it for the next four centuries. Under the sultanate, many Serbs left their homelands of Kosovo and Serbia to move to other areas in the Balkan Peninsula, including parts of Croatia.

Serbia began retaining its autonomy with uprisings in 1804 and 1815.

The first uprising was led by a Serbian trader named Dorde Petrovic (also know as Karadzordze or "Black George") who, with Russian support, helped the Serbs fight against the Turks. But after Russia was threatened by a Napoleonic invasion, Serbia was left vulnerable. By 1813 Karadzordze and his followers were forced to retreat.

The second was led by Milos Obrenovic. This time, again with the support of Russia, the Serbs drove the Turks out of much of Serbia.

As a result of the uprisings and subsequent wars against the Ottoman Empire, the Kingdom of Serbia was proclaimed in 1882.

Much of the time after the departure of the Turks was marked with dynastic rivalry between the Karadzordzevic and Obrenovic families.

World War I

In 1908, the Austrian-Hungarian Empire annexed Bosnia, and Serbia set out to attain Bosnia, where many Serbians lived. This led to the Balkan Wars of 1912-13. Russia, who had pledged continued support of Serbia, began to mobilize troops, which caused Germany, allied with Austria-Hungary, to threaten war on Russia.

In 1914, Gavrilo Princip, a Bosnian Serb, assassinated Austrian Archduke Franz Ferdinand during a visit to Sarajevo, the Bosnian capital. This act is considered one of the main reasons for the outbreak of World War I.

Soon after the war began, the Austrian-Hungarian Empire occupied Serbia. In 1918, thanks to a successful Allied offensive, the empire collapsed, and the Serbian territories were liberated. The Kingdom of Serbs, Croats and Slovenes was formed; it was ruled by King Alexander.

At the time of its inception, Serbia was the dominant republic in the new kingdom, and the most influential. Croatians opposed the new nation from the start, and ethnic and religious tensions mounted. In 1929, in an attempt to unite the Serbs and Croats, the king abolished the constitution and renamed the country The Kingdom of Yugoslavia; his policies, however, were opposed by the Fascist leaders of the time and further alienated non-Serbs. He was assassinated in 1934 by a member of a Croatian separatist organization.

World War II

At the beginning of the 1940s, most of the countries surrounding Yugoslavia had signed agreements with either Germany or Italy.

Adolf Hitler was convinced that Yugoslavia also would join the Axis powers, but public demonstrations against Nazism sprang up throughout the kingdom. Hitler responded with force, bombing Belgrade in 1941 and sending ground forces to invade Yugoslavia. After a brief period of fighting, Yugoslavia was conquered, and the newly formed Independent State of Croatia became a puppet regime to Nazi Germany.

Germany's intention was to have as few German troops as possible tied up in occupying a country, leaving policing to the locals, such as the Croats. Croatia set about a policy of "racial purification." Concentration camps were created for anti-fascists, communists, Serbs, Gypsies and Jews; millions of men, women and children, mostly Serbs, were executed in these camps.

During the war, two organizations emerged to resist the Nazis: the Yugoslav Army in the Fatherland, a largely Serbian guerilla army, and the communist Partisans, led by Josip Broz Tito.

In 1944, the Germans had retreated from the Balkans, and much of what had been Yugoslavia had been liberated by Tito's partisans. By the end of the war, the communists had taken control.

On Nov. 29, 1945, the Federative People's Republic of Yugoslavia was established as a communist state; it comprised the area of modern-day Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Serbia, and Slovenia. Tito, seen as a national hero by the citizens, became the country's prime minister.

Yugoslavia was among the countries that suffered the greatest losses in World War II: 1,700,000 people (10.8 percent of the population) were killed, and national damages were estimated at 9.1 billion dollars according to the prices of the period (over 100 billion dollars by today's prices).

The Tito years

Josip Broz Tito was born into a peasant family in Kumrovec, Croatia in 1892; his father was Croatian and his mother Slovenian. He was drafted into the Austro-Hungarian army in 1913 and served as a sergeant in WWI, fighting against Serbia. In 1915 he was wounded and captured by the Russians and sent to a work camp, where the prisoners elected him the camp's leader. He was freed in 1917 and participated in communist demonstrations in Saint Petersburg.

He applied for membership in the Soviet Communist Party in 1918, and, upon his return to Croatia in 1920, joined the Communist Party of Yugoslavia. He was the leader of the communist partisans who sought to liberate Yugoslavia from the Nazis during World War II. When the Federative People's Republic of Yugoslavia was created in 1945, he was named prime minister.

Tito solidified his control by purging his government of all non-communists: Tens of thousands who did not support communist ideals, mostly Serbs, were executed.

At first, the country followed a Soviet model, but in 1948 Tito chose to break from the Soviet Union. He was the first socialist leader to successfully defy Joseph Stalin's leadership. As a result, later that year the Yugoslav Communist Party was expelled from Cominform, the European organization

of ruling communist parties. This rift with the Soviet Union brought Tito international recognition. He eventually created Titoism, his own brand of socialism.

He wanted to unify the ethnically diverse Yugoslavia; his motto was "brotherhood and unity." Tito's administration united a country that had been severely affected by the war and successfully suppressed the nationalist sentiments of the various ethnic groups in favor of a common Yugoslav goal.

Hugely popular, Tito was elected president in 1953. In the almost 30 years of his presidency, Yugoslavia remained remarkably stable despite being a country with a complex ethnic mix.

Ethnic hostilities, however, weren't mended; Tito simply did not tolerate ethnic nationalism, and outspoken nationalists were arrested or killed.

In 1961, Yugoslavia became a founding member of the Non-Aligned Movement, along with India, Egypt and Indonesia. The movement promoted a policy of neutrality during the Cold War.

In 1963, the country was renamed The Socialist Federal Republic of Yugoslavia, and a new constitution was adopted, giving more power to its six republics, Bosnia, Croatia, Macedonia, Montenegro, Serbia, and Slovenia. Each republic was given a constitution, supreme court, parliament, president and prime minister.

In 1974, the constitution was changed again, naming Tito President for Life. It gave the six republics and the two Serbian provinces of Kosovo and Vojvodina, even more autonomy and voting power: Control of education, health care and housing would be exercised entirely by each republic or province. The republics also were granted the right to declare independence.

Tito's most remarkable achievement while president was being able to maintain unity in an ethnically diverse country with a long history of violence. His death in 1980 marked the beginning of rising ethnic tensions.

From Tito to the present

The Federation of Yugoslavia continued for almost 10 years after Tito's death with a collective presidency that consisted of representatives from the six republics and the two autonomous provinces within Serbia. In an effort to equalize them, the presidency rotated between the republics and provinces on an annual basis. This gave more power to the smaller republics and the provinces at the expense of the larger ones.

Serbia's displeasure toward the independent role assigned its provinces began during Tito's presidency and strengthened after his death.

In 1989, Slobodan Milosevic, a banking official from Belgrade, succeeded in a coup to become president of the Serbian Republic.

His nationalist calls for Serbian domination led to the violent break up of Yugoslavia along ethnic and religious lines.

He cancelled the political autonomy of Kosovo and Vojvodina, which now were to be represented by the Serbian government. (Vojvodina occupied a much more favorable economic and geographic position than Kosovo, and their ethnic Hungarian population was much smaller than the Albanian population of Kosovo.)

Most of the other republics opposed Milosevic's stand on Kosovo, especially Slovenia and Croatia, and they responded by demanding further independence. This prompted Albanians in Kosovo to want separation from Serbia.

In 1991 Slovenia, Croatia, and Macedonia declared independence. With 90 percent of its population ethnic Slovenians, Slovenia was able to break away with only a brief period of fighting. However, Bosnia and Montenegro, the other two republics, had Serbian inhabitants in greater percentages, and Milosevic intended to unite them all in one Serbian republic. (In 1992 the citizens of Montenegro voted to remain with Serbia, and the two republics formed The Federal Republic of Yugoslavia).

As Croatia moved toward independence, Croatian Serbs protested, remembering the Serb persecution in Croatia during World War II; they were backed by the federal Serbian-controlled Army. Croatia responded by evicting most of its Serbian population.

Croats and Serbs engaged in a civil war until a cease-fire was declared in 1992 and the United Nations ordered economic sanctions against Serbia. In 1995, however, in an attempt to reclaim lost land, Croatia waged a military campaign against Serbs living in Croatia. About 200,000 Serbs were forced to leave and the land was regained.

Bosnia was the most ethnically diverse republic: 43 percent Muslim, 31 percent Orthodox and 17 percent Roman Catholic at this time

In 1992, Bosnian Serbs wishing to remain part of Milosevic's "Greater Serbia" declared themselves a separate entity from the rest of Bosnia.

Bosnia found this to be illegal and declared its independence from Yugoslavia later that year.

The Yugoslav Army, having just finished a year-long conflict in Croatia, now went to war in Bosnia. Much of the republic fell to the Serbs, which began its policy of ethnic cleansing.

It became clear to the United Nations that Serbia's aim was political domination and that this would be achieved by isolating ethnic groups, exterminating them if necessary. When images of starving prisoners in concentration camps came out of Bosnia, the world began to realize the full scope of the genocide.

In November 1995, the U.S.-sponsored peace talks in Dayton, Ohio, resulted in the leaders of Yugoslavia, Croatia and Bosnia and Herzegovina signing a peace treaty, the Dayton Peace Accords, ending the 3½-year war in Bosnia. It was the bloodiest war in Europe since World War II: More than a million people died.

Bosnia was preserved as a single state, but was partitioned into two areas: A Muslim-Croat federation representing 51% of the country's territory and a Serb republic holding the remaining 49%.

In the province of Kosovo, meanwhile, Albanian leaders were leading a peaceful resistance movement against Serbia; when this failed to yield results, an armed resistance emerged in 1997 — the Kosovo Liberation Army (KLA). With the goal of securing independence from Serbia, the KLA began attacking Serbian policemen.

In 1998, Milosevic led a brutal military campaign against the KLA that included executing civilian non-combatants. His campaign against Kosovo led to massacres and the expulsion of ethnic Albanians living in Kosovo. War broke out, and large numbers of Albanians were killed or forced to flee their homes.

These acts prompted NATO to bomb Serbia and Montenegro in 1999 after failed peace talks. The Serbian military was eventually forced to leave Kosovo later that year; since June 1999, the province has been governed by peace-keeping forces from NATO and Russia.

In 2000, uprisings began all across Serbia to bring down Milosevic, and he was forced to step down as president in 2000. Following a warrant for his arrest on charges of abuse of power and corruption, he surrendered to Yugoslav security forces in 2001. He was charged at The Hague for genocide in Bosnia and war crimes in Croatia and Kosovo — the first head of state to face an international war-crimes court. He died in 2006 before the end of his trial.

Yugoslavia was officially terminated as a country when Serbia and Montenegro, its two remaining republics, declared their independence in 2006.

About Nikola Tesla

Nikola Tesla was born at the stroke of midnight during an electrical storm, July 10, 1856. His parents, who were Serbs, lived in Smiljan, a village in the province of Lika, Croatia, which was part of the Austria-Hungarian Empire. His father was a Serbian Orthodox priest; his mother, though illiterate, was an inventor of household gadgets to help in her housework.

Tesla started inventing at age 4, creating a paddle-less water wheel out of a crude disc and a twig.

He studied engineering at the Technical University of Graz, Austria, and the University of Prague, but it was his fascination with electricity that drew him to his first job in 1881: an electrical engineer for the American Telephone Company in Budapest.

During this time, Tesla developed plans for an alternating-current (AC) induction motor that converted electrical power to mechanical power.

In 1882 he took a job with the Continental Edison Company in Paris. He continued working on his induction motor after hours. Finding little interest in his radical device in Europe, he moved to New York with only 4 cents in his pocket and went to work for Thomas Alva Edison.

Noting Tesla's aptitude, Edison challenged him to improve upon his own direct current (DC) electricity model — for a $50,000 bonus.

Tesla believed the secret lay in alternating current, which changes direction 50 or 60 times per second, allowing it to travel over long distances. Edison's DC model was weak and required power stations to be placed every two miles.

Upon presenting his AC model to Edison, Edison acknowledged the improvement, but refused to give Tesla the $50,000. When he asked for it, Edison replied, "Tesla, you don't understand our American humor." Outraged, Tesla left Edison's company to start his own, where he would produce motors and generators for his alternating current.

Tesla garnered 40 patents for his inventions using AC power, and in 1888 he presented them in his first lecture, "A new system of motors and transformers of alternate currents."

After seeing the presentation, George Westinghouse, an inventor and industrialist, bought all Tesla's patents, believing AC power was the future of electricity.

In an effort to discredit Tesla, Edison spoke openly about the dangers of AC, at times publicly electrocuting cats and dogs to show the power of Tesla's current.

In 1893, Tesla and The Westinghouse Co. were commissioned to light the World's Columbian Exposition in Chicago, enabling them to show the world the wonder of AC power. Tesla's final victory for AC was won in 1895 with his design for the first hydroelectric power plant at Niagara Falls. He was then acknowledged by the world to be a hero, and the battle over electricity had been won.

AC still powers the world.

Tesla continued to make important discoveries with wireless electricity in Colorado Springs, where he built a laboratory in 1899. There, he created a powerful Tesla coil, which threw sparks that could be seen 10 miles away and transmitted electricity that lit 200 lights 25 miles away, without the use of wires. He also reported that, in discovering terrestrial stationary waves, he had received radio signals from another planet.

Pursuing his vision of world-wide wireless electricity, in 1901 he began constructing a tower on Long Island to transmit power without wires anywhere in the world. He envisioned being able to send communications and to power industries and transportations.

J.P. Morgan, the chief investor, eventually pulled his funds when he realized the power would be free, saying, "If anyone can draw on the power, where do we put the meter?" The transmitting tower was never completed.

Tesla, who received several honorary degrees during his life, eventually held 700 patents. He is credited with the invention of the fluorescent light, laser beam, wireless communications, remote control, robotics and vertical take-off aircraft. Tesla's coil was used in the experimentation of X-rays, electrotherapy and wireless electric transmission; today, it is used in radio and television sets. Tesla was the first to demonstrate radio, although the inventor Guglielmo Marconi was later credited with the invention.

Tesla died in New York City on January 7, 1943.

Nikola Tesla Timeline

1856 Nikola Tesla is born during an electrical storm, July 10, 1856, to Serbian parents in Croatia.

1875 Tesla begins technical schooling in Graz, Austria. In his sophomore year, his father dies, and he is forced to drop out of school due to lack of funds.

1881 Tesla begins working for the American Telephone Company in Budapest and develops plans for an induction motor that converts electrical power to mechanical power. He also suffers a nervous breakdown.

1882 Tesla conceives his alternating current (AC) induction motor. He also begins working for the Continental Edison Company in Paris, France.

1884 Tesla immigrates to the United States with 4 cents in his pocket and lives in New York City. He begins working for Thomas Alva Edison, who challenges him to improve Edison's direct current (DC) electricity model.

1885 Tesla quits working for Edison after he is cheated out of promised compensation and starts his own company.

1887 Tesla builds the first AC Induction Motor.

1888 Inventor and businessman George Westinghouse buys Tesla's 40 patents for AC motors and transformers for $60,000.

1891 Tesla becomes a U.S. citizen and builds an experimental laboratory in New York City. He invents the Tesla Coil.

1893 Tesla demonstrates a wireless transmitter/receiver system in St. Louis, two years before Guglielmo Marconi's first demonstration.

1893 Westinghouse and Tesla provide AC power to light the World's Columbian Exposition in Chicago.

1895 A fire destroys Tesla's laboratory, ruining the work of half a lifetime.

1896 Tesla harnesses the power of Niagara Falls and provides AC power to Buffalo, N.Y., via his high-voltage polyphase system.

1897 Tesla files for a patent for the invention of the basic radio. The patent is awarded in 1900.

1898 Tesla demonstrates a remote-controlled boat in Madison Square Garden.

1899 Tesla begins testing wireless electricity in his Colorado Springs Research Lab.

1901 Tesla begins constructing a transmitting tower on Long Island to transmit wireless electric power anywhere in the world. It is funded by J.P. Morgan.

1903 Morgan refuses to provide additional funding for the tower after learning there would be no profit in wireless power transmission, and it was never completed.

1904 The U.S. Patent Office reverses itself and gives Marconi the patent for the invention of radio.

1907 Tesla agrees to release Westinghouse from paying him royalties. He sells his rights to Westinghouse for $216,000; they were worth more than $12 million.

1916 Tesla declares bankruptcy.

1917 Tesla receives the Edison Medal, the most prestigious honor bestowed upon an engineer.

1928 Tesla receives his last patent at age 72 for the "Apparatus for Aerial Transportation" (for a vertical take-off aircraft, similar to a helicopter).

1931 Tesla appears on the cover of Time Magazine and receives congratulations from more than 70 pioneers in science and engineering including Albert Einstein.

1943 Tesla dies penniless in a New York hotel on January 7. The FBI seizes Tesla's papers and possessions. These were eventually inherited by Tesla's nephew, Sava Kosanovic, and are now housed in the Nikola Tesla Museum in Belgrade, Serbia.

Tesla's Personality

As a Child

Tesla started inventing as a young boy. He designed a paddle-less water wheel at age 4. He also powered a windmill-like structure by gluing live June bugs to it; as the bugs tried to fly away, they made the wheel spin.

Tesla was continuously ill as a child. He had a peculiar affliction in which blinding flashes of light would appear before his eyes, accompanied by hallucinations. By his teens, he had taught himself to stop the flashes except when he was stressed. After high school, Tesla almost died from cholera, and a few years later suffered from an unknown illness that seemed to make his senses of sight and sound remarkably acute.

Characteristics

Tesla was very tall: 6 feet 6 inches.

Tesla needed very little sleep, only 2 or 3 hours a night.

He suffered from hallucinations and night tremors.

In his final years he became highly sensitive to light and sound.

He was soft-spoken and private by nature.

Tesla spoke eight languages: Serbo-Croatian, Czech, English, French, German, Hungarian, Italian and Latin.

Tesla had a photographic memory that allowed him to visualize inventions in his mind, down to the finest detail, and execute them without blueprints, notes or models.

Lifestyle

Tesla never married or had a romantic relationship, despite many advances from women. He claimed his celibacy helped him develop his inventions.

He became a vegetarian and argued that plant food helped his mental performance.

Tesla had very few friends. Mark Twain, though, became a close friend and often would visit him in his lab.

He never owned a home in America; he chose to live in hotels.

Preferences

Tesla was a proponent of self-imposed selective breeding, believing that those who were unfit to breed should be sterilized.

He supported women's rights and thought the female gender would be dominant in the future.

He always dressed formally in top hat, coat, and white gloves and was quick to criticize the clothing of others.

He liked pigeons and would feed them in Central Park. He would take wounded birds home to heal them.

Aversions

He had a fear of germs, dirt and disease, and was a compulsive hand-washer.

He disliked touching hair other than his own.

He disliked touching round objects.

He disliked overweight people and fired a secretary once for being too fat.

He was repulsed by jewelry on women, especially pearl earrings.

Quirks

He counted his steps as he walked.

He would calculate the cubic contents of his meals before eating.

He preferred numbers divisible by three and only stayed in hotel rooms divisible by three. He lived his last 10 years in the Hotel New Yorker on the 33rd floor, room 3327.

To avoid shaking hands, he would tell people he had injured his hands in a lab accident.

Tesla believed extraterrestrials had contacted him in Colorado Springs.

In his last years, Tesla would only be interviewed or make public appearances on his birthday, July, 10.

Quotes

"Science is but a perversion of itself unless it has as its ultimate goal the betterment of humanity."

"I am equally proud of my Serbian origin and my Croatian fatherland."

"… the idea occurred to me like a flash of lightning and in a second the truth revealed itself. With a stick I drew in the sand the diagrams ..."

"My method is different. I do not rush into actual work. When I get a new idea, I start at once building it up in my imagination, and make improvements and operate the device in my mind. When I have gone so far as to embody everything in my invention, every possible improvement I can think of, and when I see no fault anywhere, I put into concrete form the final product of my brain."

"I do not think there is any thrill that can go through the human heart like that felt by the inventor as he sees some creation of the brain unfolding to success. ... Such emotions make a man forget food, sleep, friends, love, everything."

"The only method compatible with our notions of civilization and the race is to prevent the breeding of the unfit by sterilization and the deliberate guidance of the mating instinct. … The trend of opinion among eugenists is that we must make marriage more difficult. … A century from now it will no more occur to a normal person to mate with a person eugenically unfit than to marry a habitual criminal."

Nikola Tesla, inventor

Radio

While a young Italian inventor named Guglielmo Marconi is often credited with the invention of transmitting radio waves, it was Nikola Tesla who first received radio signals in 1893. Tesla was also the first to garner the patent for basic radio applications in 1900.

At this time, Marconi was experimenting with wireless telegraph in England and attempting to receive his own radio patents in the U.S. They were all denied. In 1901 Marconi became the first person to transmit a signal across the Atlantic Ocean without a telegraph wire; he became a sensation.

In 1904, the U.S. Patent Office surprisingly reversed its decision and gave Marconi the patent for the invention of radio. Although never proved, a factor for the decision may have been the financial backing Marconi was receiving in the United States.

It wasn't until 1943 that the U.S. Supreme Court upheld Tesla's radio patent —Tesla died a few months before this happened. The court had a selfish reason for its ruling: The Marconi Co. was suing the United States government for use of its patents in World War I. The court simply avoided the action by restoring Tesla's patent.

Remote-Controlled Robotics

In 1898, in New York City's recently completed Madison Square Garden, Tesla demonstrated the world's first radio-controlled vessel. He managed to maneuver a small, iron-hulled boat on an indoor pond by transmitting radio waves from his command post to the boat's antenna.

To the people gathered, the boat appeared to have a mind of its own as it changed directions in the water. They became dumbfounded when someone in the crowd asked the boat, "What is the cube root of 64?", and the boat's lights flashed four times.

Tesla was accused of concealing a small person within the boat or controlling the boat with his mind.

Tesla's device was the birth of robotics. The invention, however, was so far ahead of its time that those who observed it could not imagine its potential.

Other Tesla inventions or developments

- Alternating current induction motor
- Bladeless turbine and pump
- Charged particle-beam devices
- Disinfectant treatment of water with ozone
- Fluorescent lighting
- Hydroelectric generator
- Lightning protection devices
- Loudspeaker
- Microwaves
- Ozone generation apparatus
- Polyphase electric power
- Radar
- Radio
- Rotating magnetic field devices
- Tesla Coil
- Vacuum tubes
- Vertical take-off aircraft
- Wireless electric power transmission concepts
- Wireless remote control
- X-ray radiation devices

War of Currents

Nikola Tesla and Thomas Alva Edison were two very different inventors. Tesla relied on moments of inspiration, perceiving the invention in his brain in detail before moving to the construction stage; Edison used trial and error and described invention as 5 percent inspiration and 95 percent perspiration. Tesla had a formal education; Edison was self-taught. And Tesla, unlike Edison, was a mathematician.

Edison undervalued Tesla as an employee, saying, "Tesla's ideas are splendid, but they are utterly impractical." He also disliked Tesla's everyday formal dress of morning coat, spats gloves and top hat.

By the time Tesla moved to the United States in 1884 and began working in Edison's lab, Edison already had earned a name for himself, having invented the light bulb and introduced electricity to New York in the 1870s.

Edison's direct current (DC) power plants had been built all along the East Coast. His lamps, however, were weak and a DC power station had to be built every two miles. Also, the exposed wires could become dangerous — the residents of Brooklyn became so accustomed to dodging shocks from electric trolley tracks that their baseball team was called the Brooklyn Dodgers. In spite of the perils, wealthy New Yorkers rushed to have their homes wired, and, before long, Edison had a monopoly on the distribution of electricity.

Tesla saw the inefficiency of Edison's direct current, which flows continuously in one direction. He believed the secret lay in the use of alternating current where electrical currents change direction 50 or 60 times per second and are able to distribute power over hundreds of miles.

Bad feelings erupted between the men when Tesla was cheated by Edison out of promised compensation, prompting him to leave Edison's employment.

After leaving Edison, Tesla developed generators, motors and transformers for his AC system and held 40 U.S. patents by 1887. George Westinghouse, the Pittsburgh inventor and industrialist, had been one of AC's early advocates, and after witnessing the efficacy of its power, he purchased Tesla's patents for $60,000 to begin development of AC systems across the country. Westinghouse made Tesla a consultant and agreed to pay him $2.50 for every horsepower sold.

Edison, who had most of his money invested in his DC system, fought the AC system. He used scare tactics to convince the public that its high voltage was too dangerous to use in cities. In New Jersey, Edison paid schoolboys 25 cents to kidnap dogs and other small animals, which he used in a series of live demonstrations. He would tie the animal to a large metal slab, and publicly electrocute it. He eventually moved on to electrocuting cattle, horses and an elephant.

The ultimate demonstration was to show that AC could kill humans. Although Edison opposed capital punishment, he convinced New York to switch from hanging condemned inmates to electrocuting them. He argued that this method was more humane. When the electric chair was first used in 1890, the technicians on hand misjudged the voltage, and the first jolt of electricity only left the man badly injured. The procedure had to be repeated. Westinghouse commented: "They would have done better using an axe." This technique of execution by electrocution was later dubbed "Westinghousing."

Despite the negative publicity created by Edison, the advantages of AC were undeniable. In 1893, Tesla was able to demonstrate the wonder of AC electricity when he and Westinghouse were commissioned to light the World's Columbian Exposition in Chicago. Opening night, 100,000 lamps were illuminated across the fairgrounds. Tesla also proved the safety of AC by passing high-frequency AC through his body to power light bulbs. He also shot large lightning bolts into the crowd without harming anyone. The world finally was witnessing the power of AC electricity.

Tesla's final victory was his design for the first hydroelectric power plant at Niagara Falls. In 1896, he sent power from the Falls to Buffalo, N.Y., and within a few years the power lines were electrifying New York City. The achievement was covered widely in the world press, and Tesla was praised as a hero and his AC system became the standard power in the 20th Century.

Soon, the Edison DC systems were converting to alternating current. Tesla's AC system still powers the world today.

“Fragments of Olympian Gossip”
By Nikola Tesla

While listening on my cosmic phone
I caught words from the Olympus blown.
A newcomer was shown around;
That much I could guess, aided by sound.
“There’s Archimedes with his lever
Still busy on problems as ever.
Says: matter and force are transmutable
And wrong the laws you thought immutable.”
“Below, on Earth, they work at full blast
And news are coming in thick and fast.
The latest tells of a cosmic gun.
To be pelted is very poor fun.
We are wary with so much at stake,
Those beggars are a pest — no mistake.”
“Too bad, Sir Isaac, they dimmed your renown
And turned your great science upside down.
Now a long haired crank, Einstein by name,
Puts on your high teaching all the blame.
Says: matter and force are transmutable
And wrong the laws you thought immutable.”
“I am much too ignorant, my son,
For grasping schemes so finely spun.
My followers are of stronger mind
And I am content to stay behind,
Perhaps I failed, but I did my best,
These masters of mine may do the rest.
Come, Kelvin, I have finished my cup.
When is your friend Tesla coming up.”
“Oh, quoth Kelvin, he is always late,
It would be useless to remonstrate.”
Then silence — shuffle of soft slippered feet—
I knock and — the bedlam of the street.

"IN TESLA'S LABORATORY"

Here in the dark what ghostly figures press! –
No phantom of the Past, or grim or sad;
No wailing spirit of woe; no specter, clad
In white and wandering cloud, whose dumb distress
Is that its crime it never may confess;
No shape from the strewn sea; nor they that add
The link of Life and Death, – the tearless mad,
That live nor die in dreary nothingness:

But blessed spirits to be born –
Thoughts to unlock the fettering chains of Things;
The Better Time; the Universal God.
Their smile is like the joyous break of morn;
How fair, how near, how wistfully they brood!
Listen! that murmur is of angels' wings

— *Robert Underwood Johnson, a close friend of Tesla*

For Further Study

Websites

NIKOLA TESLA:
http://www.tesla-museum.org
www.teslasociety.com
http://www.bibliotecapleyades.net
www.lucidcafe.com
http://www.pbs.org
http://www.croatiareport.com/teslamuzej

YUGOSLAVIA:
http://news.bbc.co.uk/
http://www.beograd.org
http://www.state.gov
http://www.kosovo.net
http://www.titoville.com
https://www.cia.gov
http://www.ppu.org.
http://ctct.essortment.com
http://www.slobodan-milosevic.org

Readings

NIKOLA TESLA:

In Search of Nikola Tesla by David F. Peat

Wizard – The Life and Times for Nikola Tesla – Biography of a Genius by Marc J. Seifer

The Wizard of Menlo Park – How Thomas Alva Edison Invented the Modern World by Randall Stross

The Importance of Thomas Edison by Kelly Anderson

My Inventions – The Autobiography of Nikola Tesla by Ben Johnston

Tesla – Man Out of Time by Margaret Cheney

Empires of Light: Edison, Tesla, Westinghouse, and the Race to Electrify the World by Jill Jonnes

The Man Who Invented the Twentieth Century: Nikola Tesla, Forgotten Genius of Electricity by Robert Lomas

YUGOSLAVIA:

The Serbs – History, Myth & the Destruction of Yugoslavia by Tim Judah

Blood and Honey – A Balkan War Journal by Ron Haviv

Milosevic – Portrait of Tyrant by Dusko Doder and Louise Branson

Tito – A Pictorial Biography by Fitzroy Maclean

Tito: And the Rise and Fall of Yugoslavia by Richard West

Milosevic: A Biography by Adam LeBor

Yugoslavia: A Concise History by Leslie Benson