

# ENGLISH LEARNING FOR CURIOUS MINDS





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## Episode #259

### Nikola Tesla: Electrical Genius

### 3rd May, 2022

[00:00:00] Hello, hello hello, and welcome to English Learning for Curious Minds, by Leonardo English.

[00:00:12] The show where you can listen to fascinating stories, and learn weird and wonderful things about the world at the same time as improving your English.

[00:00:22] I'm Alastair Budge, and today we are going to be talking about Nikola Tesla, one of history's most [gifted](#)<sup>1</sup> and brilliant inventors.

[00:00:31] This is actually part three of this three-part series on electricity in America in the late 19th century. In part one we heard about the [quintessential](#)<sup>2</sup> American [robber-baron](#)<sup>3</sup>, Thomas Edison, and in part two we heard about the War of the Currents and the battle to electrify the country.

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<sup>1</sup> having special abilities

<sup>2</sup> being the perfect or most typical example of it

<sup>3</sup> someone who had become rich through dishonest or unfair practices

## Nikola Tesla: Electrical Genius

[00:00:52] You don't have to have listened to part 1 or part 2 to enjoy part 3, this one, but if you want a deeper understanding of the character of Edison or the events of the War of the Currents, then I'd recommend listening to the others too.

[00:01:09] OK then, let's get right into it.

[00:01:13] If you Google the word "Tesla" now, you'll find plenty of results about electric cars and Elon Musk. It might take you quite a bit of [scrolling](#)<sup>4</sup> and clicking around to find anything on the man who gave his name to the most valuable automotive company in the world.

[00:01:33] The man we're talking about today is, of course, Nikola Tesla.

[00:01:38] He was [undoubtedly](#)<sup>5</sup> one of the greatest [pioneers](#)<sup>6</sup> of modern electrical engineering and is perhaps most famous for promoting and improving the alternating current, or AC system, a system that remains the global [standard](#)<sup>7</sup> for power transmission to this day.

[00:01:58] Whenever you turn on a light at home or power up an electrical appliance, the technology used can be [traced back](#)<sup>8</sup> to Tesla.

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<sup>4</sup> moving up and down a computer screen

<sup>5</sup> certainly

<sup>6</sup> people who did it for the first time

<sup>7</sup> a product that is widely recognised or accepted

<sup>8</sup> found to have been started by

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[00:02:07] He also **patented**<sup>9</sup> numerous inventions with **breakthroughs**<sup>10</sup> in wireless communication, **fluorescent**<sup>11</sup> lighting and remote control.

[00:02:16] **On paper**<sup>12</sup>, Tesla should have been one of the richest men in the world, a 19th century Elon Musk.

[00:02:24] Yet he died **penniless**<sup>13</sup> and alone in a New York hotel. A **marginalised**<sup>14</sup> and **underrated**<sup>15</sup> **outsider**<sup>16</sup> increasingly **fixated**<sup>17</sup>, or **obsessed**<sup>18</sup> with pigeons.

[00:02:37] So, what went wrong?

[00:02:39] To find out, let's take a closer look at Tesla's life and the times he lived in.

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<sup>9</sup> obtained official licences that allowed him to use them exclusively for a period of time

<sup>10</sup> important developments

<sup>11</sup> producing a very bright light by using electricity

<sup>12</sup> in theory rather than in reality

<sup>13</sup> with no money

<sup>14</sup> treated as or considered not important

<sup>15</sup> more important than most people believed

<sup>16</sup> a person who was not accepted by or who kept himself away from society

<sup>17</sup> unable to stop thinking about

<sup>18</sup> unable to stop thinking about

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[00:02:46] Nikola Tesla was born in 1856 in what is modern-day Croatia, during a [fierce](#)<sup>19</sup> lightning storm.

[00:02:55] At the time, lightning was considered to be a bad [omen](#)<sup>20</sup>, a bad sign, but Tesla's mother didn't see it that way. She would later report that she was convinced that her son would be a "child of light", and indeed electricity would forever be something that the boy would be associated with.

[00:03:19] From his early childhood, young Nikola [exhibited](#)<sup>21</sup> signs of [obsessiveness](#)<sup>22</sup> and extreme intelligence.

[00:03:28] He had a photographic memory, was able to easily memorise entire books and [excelled](#)<sup>23</sup> in learning foreign languages, becoming fluent in at least eight different languages.

[00:03:41] He was able to study [intensely](#)<sup>24</sup> [for hours upon end](#)<sup>25</sup>, rarely sleeping for more than a couple of hours in a row.

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<sup>19</sup> violent and frightening

<sup>20</sup> sign

<sup>21</sup> showed

<sup>22</sup> the state of occupying his mind with something too much

<sup>23</sup> was very good at

<sup>24</sup> with extreme attention

<sup>25</sup> continuously and without stopping

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[00:03:49] Aged 19, Nikola Tesla enrolled in the course of electrical engineering at Graz in Austria where he was a frequently [outspoken](#)<sup>26</sup> star pupil.

[00:04:01] He became obsessed with electricity, and what he [perceived](#)<sup>27</sup> as design [flaws](#)<sup>28</sup>, imperfections, in the direct current electric motors that he studied in class.

[00:04:13] Just in case you need a quick [brush up](#)<sup>29</sup>, a quick reminder on electricity, direct current or DC means that the electrical charge only flows in one direction. It is now mostly used with low voltage applications such as most modern electronic appliances and batteries.

[00:04:33] AC, or alternating current, continuously changes direction making it [unsuitable](#)<sup>30</sup> for powering sensitive modern-day devices. AC is, however, cheaper to generate and it results in less energy loss when transferred over long distances. AC can also be easily converted into different voltages, making it the best choice for power distribution.

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<sup>26</sup> expressing his opinions openly even if they were likely to shock or offend people

<sup>27</sup> understood

<sup>28</sup> mistakes, weaknesses

<sup>29</sup> reminder

<sup>30</sup> not fitting or appropriate

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[00:05:01] Although early forms of electric lighting had existed since the early 1800s, the first large-scale electrical power distribution centre was created in London in 1882, with New York and other cities following later the same year.

[00:05:19] One by one, the world's greatest cities began to make the [switch](#)<sup>31</sup> from oil and gas lamps to electric ones.

[00:05:29] These were exciting times and Tesla's studies and obsession with electricity put him at the very [forefront](#)<sup>32</sup> of key developments.

[00:05:40] For the next six years, Tesla [devoted](#)<sup>33</sup> most of his life to thinking about how he could improve DC motors, [hypothesising](#)<sup>34</sup> about electromagnetic fields and how an electric motor driven by AC power would work.

[00:05:57] Despite his obvious talent, Tesla didn't end up as a star university student.

[00:06:03] His focus on this new type of electric motor [dominated](#)<sup>35</sup> his entire life and he was unable to concentrate on his university studies.

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<sup>31</sup> change

<sup>32</sup> most important position

<sup>33</sup> dedicated, gave

<sup>34</sup> giving possible explanations

<sup>35</sup> controlled, had great effect on

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[00:06:14] It got so bad that his university professors warned his father about his son's [damagingly<sup>36</sup>](#) [intense<sup>37</sup>](#) studying with very little sleep.

[00:06:24] And Tesla [paid the price<sup>38</sup>](#), he suffered a nervous [breakdown<sup>39</sup>](#), and ended up [gambling away<sup>40</sup>](#) much of the money he had, [dropping out<sup>41</sup>](#) and never graduating from university.

[00:06:37] On recovering from this [breakdown](#), the idea for a new AC electric motor came to him like a vision one day in 1882 when he was out walking.

[00:06:51] It was no doubt the [fruit<sup>42</sup>](#), the result, of years of [intense](#) reflection, but certainly there was an element of [sheer<sup>43</sup>](#) genius to it.

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<sup>36</sup> causing damage, harmful

<sup>37</sup> extreme

<sup>38</sup> suffered the consequences or results

<sup>39</sup> sudden failure of his mental health, mental illness

<sup>40</sup> losing by playing games of chance

<sup>41</sup> stopping or abandoning his studies

<sup>42</sup> result

<sup>43</sup> complete, perfect



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[00:07:01] Unlike most other famous scientists, and certainly unlike Thomas Edison, Tesla would develop and perfect almost all of his inventions [introspectively<sup>44</sup>](#), inside his head, rather than writing notes.

[00:07:17] It really was a case of him walking along and suddenly, almost in a flash of light, he would [figure out<sup>45</sup>](#), in theory, how to fix an immensely complicated technical problem.

[00:07:31] With this new brilliant idea in his head, Tesla moved to Paris in 1882.

[00:07:38] In Paris, he found a job repairing direct current power plants with the Continental Edison Company.

[00:07:46] Thomas Edison, the American nine years Tesla's senior, was by this time already an extremely famous inventor, and a very successful businessman.

[00:07:58] He was a major player in electrifying the first cities across the world, having invented the first commercially successful electric lightbulb, and had now moved on to electric transmission systems to compete with and replace the existing gas lighting utilities.

[00:08:17] Tesla's manager at Edison's Paris office was sent back to the US to run Edison's manufacturing division.

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<sup>44</sup> inside his head

<sup>45</sup> understand, know

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[00:08:25] He was so impressed with Tesla's work that he asked for the young engineer to be transferred with him.

[00:08:32] So, in June of 1884, aged 28, Tesla moved to the United States, where he would eventually become [naturalised](#)<sup>46</sup>, that is a US citizen, and [carry out](#)<sup>47</sup> the vast majority of his inventions.

[00:08:48] However, Tesla's employment at the Edison Machine Works was [short-lived](#)<sup>48</sup>, it didn't last long.

[00:08:55] There are differing stories about exactly why Tesla left Edison's company, but the general theory goes that he was promised a large bonus, \$50,000 at the time, which would be about 1.3 million euros in today's money, for designing improvements to Edison's direct current dynamos.

[00:09:18] Tesla produced these new improvements, but Edison [refused](#)<sup>49</sup> to [pay out](#)<sup>50</sup>, saying that the bonus offer had been a joke and Tesla did not understand American humour.

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<sup>46</sup> admitted or accepted as a US citizen

<sup>47</sup> produce, perform

<sup>48</sup> lasting only a short time

<sup>49</sup> said that he would not do it

<sup>50</sup> pay (for a large amount of money)

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[00:09:30] Well, if I thought I was going to be paid 1.3 million euros, and my boss said, “hahaha, I was only joking”, I’m not sure I’d see the funny side of it either.

[00:09:42] [Enough was enough](#)<sup>51</sup> for Tesla, and he quit.

[00:09:46] If you’ve listened to the episode on the War of the Currents, you’ll know that paying Tesla the 1.3 million Euro bonus would have been incredibly good value, as our genius’ protagonist’s next move was to [branch out](#)<sup>52</sup> on his own, to [set up](#)<sup>53</sup> his own company, and eventually compete with Edison.

[00:10:06] The new company was called Tesla Electric Light & Manufacturing.

[00:10:11] He [initially](#)<sup>54</sup> managed to raise some funding for it, but although its products, the new lighting system and AC motor plans, showed some promise, his [backers](#)<sup>55</sup> decided to [pull out](#)<sup>56</sup>.

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<sup>51</sup> that was enough, no more of that would be accepted

<sup>52</sup> start doing something new

<sup>53</sup> organise, arrange

<sup>54</sup> at first

<sup>55</sup> financial supporters

<sup>56</sup> leave him, back out

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[00:10:25] His company was now [worthless](#)<sup>57</sup>, and [to make ends meet](#)<sup>58</sup> Tesla had to take on basic electrical repair jobs and even took a job [digging](#)<sup>59</sup> [ditches](#)<sup>60</sup> for \$2 a day.

[00:10:38] Looking back on the year of 1886 as a year of [hardship](#)<sup>61</sup>, he would later write:

[00:10:45] “My high education in various [branches](#)<sup>62</sup> of science, mechanics and literature seemed to me like a [mockery](#)<sup>63</sup>”.

[00:10:53] However, [word had already got out](#)<sup>64</sup> that Tesla [was onto something](#)<sup>65</sup> with his AC powered motor, and before long companies started knocking at his door.

[00:11:04] A wealthy businessman called George Westinghouse would be the partner, or perhaps even client, that Tesla had been looking for. Westinghouse had made his

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<sup>57</sup> having no value in money

<sup>58</sup> to earn just enough money to live on

<sup>59</sup> removing earth in order to make

<sup>60</sup> long narrow holes

<sup>61</sup> difficult conditions of life

<sup>62</sup> areas, fields

<sup>63</sup> joke

<sup>64</sup> it had already become known

<sup>65</sup> had discovered or produced something important

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money in the railway industry, but in the early 1880s had turned his attention to electricity.

[00:11:23] When Westinghouse entered the electricity business [for good](#)<sup>66</sup>, in 1884, the standard across cities in the United States was the DC current system provided by Edison.

[00:11:35] Edison controlled all technical development and held all of the necessary [patents](#)<sup>67</sup>.

[00:11:42] Rather than [contenting himself](#)<sup>68</sup> with creating another DC system, Westinghouse developed an AC power system that was inspired by the progress made in AC power transmission in Europe.

[00:11:56] As a reminder, DC is not good at travelling long distances, whereas AC is.

[00:12:04] Given the short range of Edison's DC power plants, there was also a ready market of [unsupplied](#)<sup>69</sup> customers between each plant that Westinghouse could easily reach with his AC power.

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<sup>66</sup> permanently

<sup>67</sup> official licences that allowed him to use his inventions exclusively for a period of time

<sup>68</sup> being satisfied

<sup>69</sup> not supplied or provided



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[00:12:18] This made Westinghouse Edison's direct competitor in what was to become known as the “War of the Currents” - the battle to develop the [dominant](#)<sup>70</sup> electrical power transmission system in America. We went into this in great detail in the last episode, episode number 258, so if you haven't listened to that one yet I would recommend doing so.

[00:12:42] Long story short, Westinghouse's system beat Edison's, and as far as Tesla was concerned, the money he made from [licensing](#)<sup>71</sup> his [patents](#) to Westinghouse meant he had the resources and money to [devote](#)<sup>72</sup> to his own scientific interests.

[00:12:59] During the 1890s, Tesla went on to invent the famous Tesla Coil - a way to transmit electricity wirelessly that he often used to impress [backers](#) and the general public alike in a spectacular, [show-like](#)<sup>73</sup> [fashion](#)<sup>74</sup>.

[00:13:16] He also developed electric meters, [oscillators](#)<sup>75</sup> and lights, as well as experimenting with X-rays.

[00:13:24] During a public demonstration with a radio-controlled model boat in Madison Square in New York, the people in the crowd assumed that a small monkey

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<sup>70</sup> having the most control or influence

<sup>71</sup> getting permission to use

<sup>72</sup> dedicate, give

<sup>73</sup> like a show or performance

<sup>74</sup> style, way

<sup>75</sup> devices that produced alternating current (AC)

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was actually driving the boat, so [novel](#)<sup>76</sup> or new, was Tesla's remote control technology at the time.

[00:13:42] The year 1895, when he was not yet even 40, [marked](#)<sup>77</sup> perhaps the [summit](#)<sup>78</sup> of Tesla's public recognition and popularity.

[00:13:53] Tesla and Westinghouse installed AC generators at Niagara Falls, [fulfilling](#)<sup>79</sup> a childhood dream for Tesla and changing the way we look at such powerful natural forces.

[00:14:07] He had become the man who had managed to [harness](#)<sup>80</sup> the [immense](#)<sup>81</sup> power of North America's most powerful waterfall and turn it into something brilliant, electricity.

[00:14:19] Sure, he had had success before, and was well-known, but this really established his reputation as one of America's leading inventors.

[00:14:30] Unfortunately, the good times were about to come to an end for Tesla.

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<sup>76</sup> new

<sup>77</sup> pointed to, indicated

<sup>78</sup> highest point

<sup>79</sup> achieving, realising

<sup>80</sup> control

<sup>81</sup> extremely great

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[00:14:36] While Westinghouse eventually won the “Battle of the Currents” with AC being adopted, victory came at a [steep](#)<sup>82</sup> price due to [sky-high](#)<sup>83</sup> legal and competitive costs.

[00:14:49] At the time competition between the three big energy companies, Edison, Westinghouse and Thomson-Houston was extreme.

[00:14:59] All three were trying to expand in what was an extremely [capital intensive](#)<sup>84</sup>, expensive, business, spending big money.

[00:15:08] At the same time, they were trying to financially [undercut](#)<sup>85</sup> one another, reducing their costs to attract customers, meaning their profit margins were [razor thin](#)<sup>86</sup>.

[00:15:21] What’s more, bank collapses and financial panic in 1890 had meant that investors in Westinghouse Electric had started to [call in](#)<sup>87</sup> their loans, meaning the company was dangerously short of cash.

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<sup>82</sup> great or not reasonable

<sup>83</sup> very high

<sup>84</sup> requiring a lot of money to produce the service

<sup>85</sup> charge less than their competitors

<sup>86</sup> very small

<sup>87</sup> require payment of

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[00:15:37] After [refinancing](#)<sup>88</sup>, Westinghouse's new [lenders](#)<sup>89</sup> demanded that he [cut back](#)<sup>90</sup> on spending, including on research and [patents](#).

[00:15:47] Westinghouse was forced to ask Tesla to [renege](#)<sup>91</sup>, to [give up](#)<sup>92</sup>, his [royalty](#)<sup>93</sup> agreement, under which Tesla would be paid for the electricity produced by his motors.

[00:15:59] If Tesla didn't agree to this, Westinghouse would risk losing control of the company and financial [ruin](#)<sup>94</sup>.

[00:16:07] At this point Tesla's motor was still in development and keeping Westinghouse [on board](#)<sup>95</sup> to promote his motor probably seemed like the best option.

[00:16:17] Tesla promptly [tore up](#)<sup>96</sup> his contract and set Westinghouse free, walking away from millions of dollars he had earned and potentially billions more yet to be made.

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<sup>88</sup> finding new financial supporters

<sup>89</sup> people that gave him money with the understanding that they would get them back

<sup>90</sup> reduce the amount

<sup>91</sup> break, go back on

<sup>92</sup> break, go back on

<sup>93</sup> money paid for the use of his patent

<sup>94</sup> failure, disaster

<sup>95</sup> as part of the team

<sup>96</sup> pulled into pieces with force

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[00:16:30] If you've listened to the episode on Thomas Edison, or have some idea about the character of the man, it seems like this act by Tesla tells you all you need to know about the difference between the two.

[00:16:44] After this, Tesla began to focus more exclusively on his wireless transmission ideas, essentially the idea for the wireless radio.

[00:16:54] The banker J. P. Morgan, yes that's the same person as the founder of the J.P. Morgan bank, provided Tesla with \$150,000 to begin work on a giant tower with the aim of creating a worldwide transmission system.

[00:17:11] However, Tesla began to [run out of](#)<sup>97</sup> money before the tower was finished and Morgan refused to provide any more.

[00:17:20] [In the meantime](#)<sup>98</sup>, Tesla's rival Marconi attracted increasing amounts of funding and in 1901 succeeded in sending a radio signal from England to Newfoundland.

[00:17:33] Despite Tesla's complaints that Marconi was using 17 of his [patents](#), Marconi was celebrated as the inventor of the radio.

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<sup>97</sup> be without

<sup>98</sup> while that was happening



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[00:17:43] Although he was famous, and still by no means poor, the [latter](#)<sup>99</sup> years of Nikola Tesla's life became more and more [isolated](#)<sup>100</sup> and [withdrawn](#)<sup>101</sup> from society.

[00:17:55] His personality [quirks](#)<sup>102</sup>, his character, also became more and more strange.

[00:18:01] You can see some of this from accounts about what he actually spent his days doing.

[00:18:08] After working from 09:00 until 18:00, he always dined at exactly 10 minutes past 8 at the Waldorf-Astoria Hotel, where he was living.

[00:18:19] Not only did he somewhat [bizarrely](#)<sup>103</sup> [insist upon](#)<sup>104</sup> being seated at the exact same table every night, he would also telephone through his order to the head waiter - the only person he would allow to serve him.

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<sup>99</sup> later, final

<sup>100</sup> lonely, cut off

<sup>101</sup> removed, away

<sup>102</sup> parts of his character

<sup>103</sup> in a strange and unusual way

<sup>104</sup> Persist on, demand to

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[00:18:34] He was a complete [germaphobe](#)<sup>105</sup>, he had an extreme fear of germs, having been ill with [cholera](#)<sup>106</sup> as a young man, and ever since he insisted on having a [stack](#)<sup>107</sup> of 18 napkins on the table and washing his hands three times.

[00:18:53] After dinner, Tesla often continued to work on his inventions into the early hours, often until 3 o'clock in the morning.

[00:19:02] Although Tesla was quite [withdrawn](#) from public life when he chose to focus on his work, when he [was in the mood for](#)<sup>108</sup> socialising, he was, in fact, great company, he was a lot of fun to be around, and he had many friends.

[00:19:18] At the height of his fame he threw [lavish](#)<sup>109</sup> dinner parties and he counted Mark Twain and John Jacob Astor amongst his celebrity friends and [benefactors](#)<sup>110</sup>.

[00:19:30] He was also a very [dapper](#)<sup>111</sup>, or smart, dresser, believing that you had to look and act like you were successful to actually become successful.

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<sup>105</sup> having a fear of germs

<sup>106</sup> a serious bacterial disease

<sup>107</sup> lots of them arranged one on top of another

<sup>108</sup> felt like doing it or wanted to do it

<sup>109</sup> expensive and impressive

<sup>110</sup> people who helped him, especially financially

<sup>111</sup> dressing in a fashionable way or smart

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[00:19:40] Ultimately popular success [eluded](#)<sup>112</sup> Tesla, and his behaviour became more and more [erratic](#)<sup>113</sup>.

[00:19:48] For most of his life, Tesla had been [fond of](#)<sup>114</sup> feeding pigeons. However, as he became even more [reclusive](#)<sup>115</sup>, [cut off](#)<sup>116</sup> from society, the pigeons he fed became more and more important to him.

[00:20:03] Tesla became [fixated](#) with a white bird in particular, with one particular pigeon.

[00:20:10] He once said, “I have been feeding pigeons, thousands of them, for years. But there was one, a beautiful bird, pure white with light grey tips on its wings; that one was different. It was a female. I had only to wish and call her and she would come flying to me. I loved that pigeon as a man loves a woman, and she loved me. As long as I had her, there was a purpose to my life.”

[00:20:39] According to Tesla, this bird visited him one night in his hotel with bright [intense](#) lights shining out from its eyes. As the pigeon died in his arms, Tesla said he knew that his life’s work had been finished.

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<sup>112</sup> failed to be achieved by

<sup>113</sup> not regular or expected

<sup>114</sup> especially excited about

<sup>115</sup> lonely, not sociable

<sup>116</sup> removed, away

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[00:20:56] Although Tesla went on to make the front cover of Time Magazine in 1931, when it ran a special [feature](#)<sup>117</sup> on him and his inventions on his 75th birthday, he [lingered](#)<sup>118</sup> pretty much [in obscurity](#)<sup>119</sup> and died in 1943, [penniless](#) and in debt aged 86.

[00:21:17] He never married or had children, believing that having a family would get in the way of his work.

[00:21:24] Indeed, he famously said, “I do not think you can name many great inventions that have been made by married men.”

[00:21:32] And interestingly, this [lack](#)<sup>120</sup> of any direct family meant that he became something of a [political football](#)<sup>121</sup> during the Cold War.

[00:21:41] Upon his death, the United States government [scrambled](#)<sup>122</sup> to quickly collect all of his research to prevent any potentially important developments from [falling into](#)<sup>123</sup> foreign hands.

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<sup>117</sup> article

<sup>118</sup> remained for a long time

<sup>119</sup> in a state of being unknown or considered unimportant

<sup>120</sup> the state of being without

<sup>121</sup> an issue that politicians argued about and tried to use for their advantage

<sup>122</sup> competed with others or struggled

<sup>123</sup> being held or obtained by

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[00:21:53] But in 1952, Tesla's nephew, a man called Sava Kosanović, who was a [prominent<sup>124</sup>](#) Yugoslavian politician and the only relative that Tesla had maintained any contact with, arranged to ship all that remained of Tesla's personal [belongings<sup>125</sup>](#), documents, drawings, letters and photographs back to Belgrade in former Yugoslavia.

[00:22:18] While Tesla was celebrated as a national hero in communist Yugoslavia, with the Iron Curtain and the Cold War, Tesla's [legacy<sup>126</sup>](#) was almost forgotten in the West.

[00:22:30] His [ashes<sup>127</sup>](#) and his [personal effects<sup>128</sup>](#), as well as thousands of historical exhibits and photographs are all displayed in the Nikola Tesla Museum in Belgrade, in Serbia.

[00:22:42] Unfortunately, Western historians had limited access to important documentation and Tesla's contribution to science was mostly [overlooked<sup>129</sup>](#).

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<sup>124</sup>

<sup>125</sup> the things that he owned

<sup>126</sup> the things and contributions that he had left after his death

<sup>127</sup> the remains of his body after burning

<sup>128</sup> things that he often carried with him

<sup>129</sup> missed, left unnoticed



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[00:22:53] In recent years there has been a [renewed](#)<sup>130</sup> interest in Nikola Tesla, with his inventions, predictions and life story portrayed in books and films, and of course his name being used for the most famous electric car company in the world.

[00:23:09] Streets around the world have been named in Nikola Tesla's honour, with monuments [erected](#)<sup>131</sup> not only in Croatia and Serbia, but also at Niagara Falls and his adopted hometown of New York.

[00:23:22] While he didn't enjoy the recognition that he deserved towards the end of his life, it is perhaps [fitting](#)<sup>132</sup> that he has risen again to [prominence](#)<sup>133</sup> in the modern world, an electric world, one that might have been [fundamentally](#)<sup>134</sup> different had it not been for the genius of Nikola Tesla.

[00:23:42] OK then, that is it for today's episode on Nikola Tesla.

[00:23:47] I hope it's been an interesting one, and you've learned some new things about possibly one of the most [underrated](#) scientific geniuses.

[00:23:55] As always, I would love to know what you thought about this episode.

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<sup>130</sup> happening again, revived

<sup>131</sup> built

<sup>132</sup> right, suitable

<sup>133</sup> the state of being well-known and important

<sup>134</sup> basically, essentially

[00:23:58] Why do you think Tesla [missed out](#)<sup>135</sup> on fame and fortune?

[00:24:02] Was he taken advantage of? Who is the 21st century Nikola Tesla? Or is that a bit of a silly question, as our Tesla is someone who will only be known years after his or her death?

[00:24:15] I would love to get your perspective, so let's get this discussion started. You can head right

[00:24:21] into our community forum, which is at [community.leonardoenglish.com](https://community.leonardoenglish.com) and get chatting away to other curious minds.

[00:24:29] You've been listening to English Learning for Curious Minds, by Leonardo English.

[00:24:34] I'm Alastair Budge, you stay safe, and I'll catch you in the next episode.

[END OF EPISODE]

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<sup>135</sup> did not use or have the opportunity to experience

## Key vocabulary

Word	Definition
Gifted	having special abilities
Quintessential	being the perfect or most typical example of it
Robber-baron	someone who had become rich through dishonest or unfair practices
Scrolling	moving up and down a computer screen
Undoubtedly	certainly
Pioneers	people who did it for the first time
Standard	a product that is widely recognised or accepted
Traced back	found to have been started by
Patented	obtained official licences that allowed him to use them exclusively for a period of time
Breakthroughs	important developments
Fluorescent	producing a very bright light by using electricity
On paper	in theory rather than in reality

**Nikola Tesla: Electrical Genius**

<b>Penniless</b>	with no money
<b>Marginalised</b>	treated as or considered not important
<b>Underrated</b>	more important than most people believed
<b>Outsider</b>	a person who was not accepted by or who kept himself away from society
<b>Fixated</b>	unable to stop thinking about
<b>Obsessed</b>	unable to stop thinking about
<b>Fierce</b>	violent and frightening
<b>Omen</b>	sign
<b>Exhibited</b>	showed
<b>Obsessiveness</b>	the state of occupying his mind with something too much
<b>Excelled</b>	was very good at
<b>Intensely</b>	with extreme attention
<b>For hours upon end</b>	continuously and without stopping
<b>Outspoken</b>	expressing his opinions openly even if they were likely to shock or offend people

**Nikola Tesla: Electrical Genius**

<b>Perceived</b>	understood
<b>Flaws</b>	mistakes, weaknesses
<b>Brush up</b>	reminder
<b>Unsuitable</b>	not fitting or appropriate
<b>Switch</b>	change
<b>Forefront</b>	most important position
<b>Devoted</b>	dedicated, gave
<b>Hypothesising</b>	giving possible explanations
<b>Dominated</b>	controlled, had great effect on
<b>Damagingly</b>	causing damage, harmful
<b>Intense</b>	extreme
<b>Paid the price</b>	suffered the consequences or results
<b>Breakdown</b>	sudden failure of his mental health, mental illness
<b>Gambling away</b>	losing by playing games of chance
<b>Dropping out</b>	stopping or abandoning his studies



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<b>Fruit</b>	result
<b>Sheer</b>	complete, perfect
<b>Introspectively</b>	inside his head
<b>Figure out</b>	understand, know
<b>Naturalised</b>	admitted or accepted as a US citizen
<b>Carry out</b>	produce, perform
<b>Short-lived</b>	lasting only a short time
<b>Refused</b>	said that he would not do it
<b>Pay out</b>	pay (for a large amount of money)
<b>Enough was enough</b>	that was enough, no more of that would be accepted
<b>Branch out</b>	start doing something new
<b>Set up</b>	organise, arrange
<b>Initially</b>	at first
<b>Backers</b>	financial supporters
<b>Pull out</b>	leave him, back out

**Nikola Tesla: Electrical Genius**

<b>Worthless</b>	having no value in money
<b>To make ends meet</b>	to earn just enough money to live on
<b>Digging</b>	removing earth in order to make
<b>Ditches</b>	long narrow holes
<b>Hardship</b>	difficult conditions of life
<b>Branches</b>	areas, fields
<b>Mockery</b>	joke
<b>Word had already got out</b>	it had already become known
<b>Was onto something</b>	had discovered or produced something important
<b>For good</b>	permanently
<b>Patents</b>	official licences that allowed him to use his inventions exclusively for a period of time
<b>Contenting himself</b>	being satisfied
<b>Unsupplied</b>	not supplied or provided
<b>Dominant</b>	having the most control or influence

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<b>Licensing</b>	getting permission to use
<b>Devote</b>	dedicate, give
<b>Show-like</b>	like a show or performance
<b>Fashion</b>	style, way
<b>Oscillators</b>	devices that produced alternating current (AC)
<b>Novel</b>	new
<b>Marked</b>	pointed to, indicated
<b>Summit</b>	highest point
<b>Fulfilling</b>	achieving, realising
<b>Harness</b>	control
<b>Immense</b>	extremely great
<b>Steep</b>	great or not reasonable
<b>Sky-high</b>	very high
<b>Capital intensive</b>	requiring a lot of money to produce the service
<b>Undercut</b>	charge less than their competitors

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<b>Razor thin</b>	very small
<b>Call in</b>	require payment of
<b>Refinancing</b>	finding new financial supporters
<b>Lenders</b>	people that gave him money with the understanding that they would get them back
<b>Cut back</b>	reduce the amount
<b>Renegade</b>	break, go back on
<b>Give up</b>	break, go back on
<b>Royalty</b>	money paid for the use of his patent
<b>Ruin</b>	failure, disaster
<b>On board</b>	as part of the team
<b>Tore up</b>	pulled into pieces with force
<b>Run out of</b>	be without
<b>In the meantime</b>	while that was happening
<b>Latter</b>	later, final
<b>Isolated</b>	lonely, cut off

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<b>Withdrawn</b>	removed, away
<b>Quirks</b>	parts of his character
<b>Bizarrely</b>	in a strange and unusual way
<b>Insist upon</b>	persist on, demand to
<b>Germaphobe</b>	having a fear of germs
<b>Cholera</b>	a serious bacterial disease
<b>Stack</b>	lots of them arranged one on top of another
<b>Was in the mood for</b>	felt like doing it or wanted to do it
<b>Lavish</b>	expensive and impressive
<b>Benefactors</b>	people who helped him, especially financially
<b>Dapper</b>	dressing in a fashionable way or smart
<b>Eluded</b>	failed to be achieved by
<b>Erratic</b>	not regular or expected
<b>Fond of</b>	especially excited about
<b>Reclusive</b>	lonely, not sociable

## Nikola Tesla: Electrical Genius

<b>Cut off</b>	removed, away
<b>Feature</b>	article
<b>Lingered</b>	remained for a long time
<b>In obscurity</b>	in a state of being unknown or considered unimportant
<b>Lack</b>	the state of being without
<b>Political football</b>	an issue that politicians argued about and tried to use for their advantage
<b>Scrambled</b>	competed with others or struggled
<b>Falling into</b>	being held or obtained by
<b>Prominent</b>	well known and important
<b>Belongings</b>	the things that he owned
<b>Legacy</b>	the things and contributions that he had left after his death
<b>Ashes</b>	the remains of his body after burning
<b>Personal effects</b>	things that he often carried with him
<b>Overlooked</b>	missed, left unnoticed
<b>Renewed</b>	happening again, revived

Nikola Tesla: Electrical Genius

**Erected** built

**Fitting** right, suitable

**Prominence** the state of being well-known and important

**Fundamentally** basically, essentially

**Missed out** did not use or have the opportunity to experience

*We'd love to get your feedback on this episode.*

*What did you like? What could we do better?*

*What did you struggle to understand?*

*Let us know in the forum [community.leonardoenglish.com](https://community.leonardoenglish.com)*