History of Electric Vehicle

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ELECTRIC MODEL CARS

The invention of the first model electric vehicle is attributed to various people.[1] In 1828, Ányos Jedlik, a Hungarian who invented an early type of electric motor created the small model car powered by his new motor. In 1834, Vermont blacksmith Thomas Davenport built a similar contraption which operated on a short, circular, electrified track.[2] In 1834, Professor Sibrandus Stratingh of Groningen, the Netherlands and his assistant Christopher Becker created a small-scale electrical car, powered by non-rechargeable primary cells.

ELECTRIC LOCOMOTIVES

The first known electric car was built in 1837, in Scotland by chemist Robert Davidson of Aberdeen. It was powered by galvanic cells (batteries). Davidson later built a larger locomotive named *Galvani*, exhibited at the Royal Scottish Society of Arts Exhibition in 1841. The 7,100-kilogram (7-long-ton) vehicle had two direct-drive reluctance motors, with fixed electromagnets acting on iron bars attached to a wooden cylinder on each axle, and simple commutators. It hauled a load of 6,100 kilograms (6 long tons) at 6.4 kilometers per hour (4 mph) for a distance of 2.4 km (1.5 miles). It was tested on the Edinburgh and Glasgow Railway in September of the following year, but the limited power from batteries prevented its general use. It was destroyed by railway workers, who saw it as a threat to their security of employment.

Between 1832 and 1839, Scottish inventor Robert Anderson also invented a crude electrical carriage. A patent for the use of rails as conductors of electric current was granted in England in 1840, and similar patents were issued to Lilley and Colten in the United States in 1847.[3]

FIRST PRACTICAL ELECTRICAL CARS

Electric car built by Thomas Parker, photo from 1895

Flocken Elektrowagen, 1888 (reconstruction, 2011)

German electric car, 1904, with the chauffeur on top

GOLDEN AGE

Interest in motor vehicles increased greatly in the late 1890s and early 1900s. Electric battery-powered taxis became available at the end of the 19th century. In London, Walter C. Bersey designed a fleet of such cabs and introduced them to the streets of London in 1897. They were soon nicknamed "Hummingbirds" due to the idiosyncratic humming noise they made.[4] In the same year in New York City, the Samuel's Electric Carriage and Wagon Company began running 12 electric hansom cabs. The company ran until 1898 with up to 62 cabs operating until it was reformed by its financiers to form the Electric Vehicle Company.

Thomas Edison and an electric car in 1913

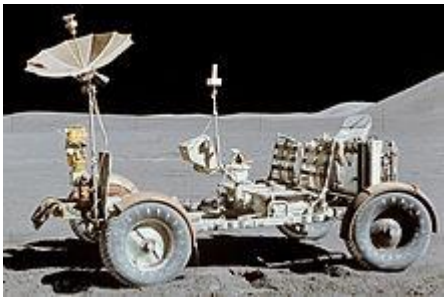
DECLINE

After enjoying success at the beginning of the 20th century, the electric car began to lose its position in the automobile market. A number of developments contributed to this situation. By the 1920s an improved road infrastructure required vehicles with a greater range than that offered by electric cars. Worldwide discoveries of large petroleum reserves led to the wide availability of affordable gasoline, making gas-powered cars cheaper to operate over long distances. Electric cars were limited to urban use by their slow speed (no more than 24–32 km/h or 15–20 mph.) and low range (30–40 miles or 50–65 km), and gasoline cars were now able to travel farther and faster than equivalent electrics.

REVIVAL OF INTEREST: 1960S

In 1959, American Motors Corporation (AMC) and Sonotone Corporation announced a joint research effort to consider producing an electric car powered by a "self-charging" battery.[5] AMC had a reputation for innovation in economical cars while Sonotone had the technology for making sintered plate nickel-cadmium batteries that could be recharged rapidly and weighed less than traditional lead-acid versions. That same year, Nu-Way Industries showed an experimental electric car with a one-piece plastic body that was to begin production in early 1960.

In the mid-1960s a few battery-electric concept cars appeared, such as the Scottish Aviation Scamp (1965), and an electric version of General Motors gasoline car, the Electrovair(1966).[6] None of them entered production. The 1966 Enfield 8000 did make it into small-scale production, 112 were eventually produced. In 1967, AMC partnered with Gulton Industries to develop a new battery based on lithium and a speed controller designed by Victor Wouk. A nickel-cadmium battery supplied power to an all-electric 1969 Rambler American station wagon. Other "plug-in" experimental AMC vehicles developed with Gulton included the Amitron (1967) and the similar Electron (1977).



The three lunar rovers are currently parked on the moon

The 2000S TO PRESENT

California electric car maker Tesla Motors began development in 2004 on the Tesla Roadster, which was first delivered to customers in 2008. The Roadster was the first highway legal serial production all-electric car to use lithium-ion battery cells, and the first production all-electric car to travel more than 320 km (200 miles) per charge.[7] Since 2008, Tesla sold approximately 2,450 Roadsters in over 30 countries through December 2012. Tesla sold the Roadster until early 2012, when its supply of Lotus Elise gliders ran out, as its contract with Lotus Cars for 2,500 gliders expired at the end of 2011. Tesla stopped taking orders for the Roadster in the U.S. market in August 2011, and the 2012 Tesla Roadster was sold in limited numbers only in Europe, Asia, and Australia. The next Tesla vehicle, the Model S, was released in the U.S. on 22 June 2012 and the first delivery of a Model S to a retail customer in Europe took place on 7 August 2013.[8] Deliveries in China began on 22 April 2014. The next model was the Tesla Model X. In November 2014 Tesla delayed one more time the start of deliveries to retail customers and announced the company expects Model X deliveries to begin in the third quarter of 2015.[9] For many years Norwegian electric vehicles have been subsidized by approximately 50%, and have several other benefits, such as the use of bus lanes and free parking. Many of these perks have been extended to 2020. In February 2017 Consumer Reports named Tesla as the top car brand in the United States and ranked it 8th among global carmakers. Global sales of the Nissan Leaf achieved the 300,000 unit milestone in January 2018.[10]

The first Chevrolet Bolt EVs were delivered to customers in the San Francisco Bay Area in December 2016

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