

## Karl Benz

From Wikipedia, the free encyclopedia

**Karl Friedrich Benz** (German: [kɑɪl ˈfʁiːdʁɪç ˈbɛnts] ⓘ<sup>ⓘ</sup> ⓘ<sup>ⓘ</sup>; November 25, 1844 – April 4, 1929) was a German engine designer and engineer, generally regarded as the inventor of the first automobile powered by an internal combustion engine, and together with Bertha Benz, pioneering founder of the automobile manufacturer Mercedes-Benz which is now one of the leading car brands. Other German contemporaries, Gottlieb Daimler and Wilhelm Maybach working as partners, also worked on similar types of inventions, without knowledge of the work of the other, but Benz received a patent for his work first, and, subsequently patented all the processes that made the internal combustion engine feasible for use in an automobile. In 1879, his first engine patent was granted to him, and in 1886, Benz was granted a patent for his first automobile.

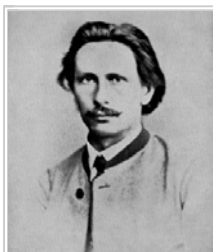
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### Early life

Karl Benz was born Karl Friedrich Michael Vaillant, on November 25, 1844 in Mühlburg, now a borough of Karlsruhe, Baden-Württemberg, which is part of modern Germany, to Josephine Vaillant and a locomotive driver, Johann George Benz, whom she married a few months later. According to German law, the child acquired the name "Benz" by legal marriage of his parents Benz and Vaillant.<sup>[1][2][3][4][5]</sup> When he was two years old, his father died of pneumonia,<sup>[6]</sup> his name was changed to Karl Friedrich Benz in remembrance of his father.<sup>[7]</sup>

Despite living in near poverty, his mother strove to give him a good education. Benz attended the local Grammar School in Karlsruhe and was a prodigious student. In 1853, at the age of nine he started at the scientifically oriented Lyceum. Next he studied at the Poly-Technical University under the instruction of Ferdinand Redtenbacher.



Karl Benz, 1869, 25 years old (Zenodot Verlagsges. mbH)

Benz had originally focused his studies on locksmithing, but he eventually followed his father's steps toward locomotive engineering. On September 30, 1860, at age fifteen, he passed the entrance exam for mechanical engineering at the University of Karlsruhe, which he subsequently attended. Benz was graduated July 9, 1864 at nineteen.

During these years, while riding his bicycle, he started to envision concepts for a vehicle that would eventually become the *horseless carriage*.

Following his formal education, Benz had seven years of professional training in several companies, but did not fit well in any of them. The training started in Karlsruhe with two years of varied jobs in a mechanical engineering company.

He then moved to Mannheim to work as a draftsman and designer in a scales factory. In 1868 he went to Pforzheim to work for a bridge building company *Gebrüder Benckiser Eisenwerke und Maschinenfabrik*. Finally, he went to Vienna for a short period to work at an iron construction company.

### Benz's first factory and early inventions (1871–1882)

In 1871, at the age of twenty-seven, Karl Benz joined August Ritter in launching the Iron Foundry and Mechanical Workshop in Mannheim, later renamed Factory for Machines for Sheet-metal Working.<sup>[8]</sup>

The enterprise's first year went very badly. Ritter turned out to be unreliable, and the business's tools were impounded. The difficulty was overcome when Benz's fiancée, Bertha Ringer, bought out Ritter's share in the company using her dowry.<sup>[8][9]</sup>

On July 20, 1872, Karl Benz and Bertha Ringer married. They had five children: Eugen (1873), Richard (1874), Clara (1877), Thilde (1882), and Ellen (1890).

Despite the business misfortunes, Karl Benz led in the development of new engines in the early factory he and his wife owned. To get more revenues, in 1878 he began to work on new patents. First, he concentrated all his efforts on creating a reliable petrol two-stroke engine. Benz finished his two-stroke engine on December 31, 1878, New Year's Eve, and was granted a patent for it in 1879.

Karl Benz showed his real genius, however, through his successive inventions registered while designing what would become the production standard for his two-stroke engine. Benz soon patented the speed regulation system, the ignition using sparks with battery, the spark plug, the carburetor, the clutch, the gear shift, and the water radiator.

### Benz's Gasmotoren-Fabrik Mannheim (1882–1883)

Problems arose again when the banks at Mannheim demanded that Bertha and Karl Benz's enterprise be incorporated due to the high production costs it maintained. The Benzes were forced to improvise an association with photographer Emil Bühler and his brother (a cheese merchant), in order to get additional bank support. The company became the joint-stock company *Gasmotoren Fabrik Mannheim* in 1882.

**Karl Benz**



|                             |   |
|-----------------------------|---|
| <b>Born</b>                 | November 25, 1844 <div>Mühlburg (Karlsruhe), German Confederation</div> |
| <b>Died</b>                 | April 4, 1929 (aged 84) <div>Ladenburg, Germany</div>                   |
| <b>Nationality</b>          | German  |
| <b>Ethnicity</b>            | German  |
| <b>Education</b>            | University of Karlsruhe   |
| <b>Spouse(s)</b>            | Bertha Ringer   |
| <b>Children</b>             | 5, Eugen, Richard, Clara, Ellen, Thilde                                 |
| <b>Parent(s)</b>            | Johann George Benz (father), <div>Josephine Vaillant (mother)</div>     |
| <b>Engineering career</b>   |   |
| <b>Significant projects</b> | founded Mercedes-Benz   |
| <b>Significant design</b>   | Benz Patent Motorwagen  |
| <b>Significant advance</b>  | Petroleum-powered automobile  |

**Signature**

*Karl Benz*

After all the necessary incorporation agreements, Benz was unhappy because he was left with merely five percent of the shares and a modest position as director. Worst of all, his ideas weren't considered when designing new products, so he withdrew from that corporation just one year later, in 1883.

## Benz & Cie. and the Benz Patent Motorwagen

Benz's lifelong hobby brought him to a bicycle repair shop in Mannheim owned by Max Rose and Friedrich Wilhelm Eßlinger. In 1883, the three founded a new company producing industrial machines: *Benz & Company Rheinische Gasmotoren-Fabrik*, usually referred to as, *Benz & Cie.* Quickly growing to twenty-five employees, it soon began to produce static gas engines as well.

The success of the company gave Benz the opportunity to indulge in his old passion of designing a *horseless carriage*. Based on his experience with, and fondness for, bicycles, he used similar technology when he created an automobile. It featured wire wheels (unlike carriages' wooden ones)<sup>[10]</sup> with a four-stroke engine of his own design between the rear wheels, with a very advanced coil ignition<sup>[11]</sup> and evaporative cooling rather than a radiator.<sup>[11]</sup> Power was transmitted by means of two roller chains to the rear axle. Karl Benz finished his creation in 1885 and named it the Benz Patent Motorwagen.

It was the first automobile entirely designed as such to generate its own power, not simply a motorized-stage coach or horse carriage, which is why Karl Benz was granted his patent and is regarded as its inventor.

The Motorwagen was patented on January 29, 1886 as DRP-37435: "automobile fueled by gas".<sup>[12]</sup> The 1885 version was difficult to control, leading to a collision with a wall during a public demonstration. The first successful tests on public roads were carried out in the early summer of 1886. The next year Benz created the Motorwagen Model 2, which had several modifications, and in 1887, the definitive Model 3 with wooden wheels was introduced, showing at the Paris Expo the same year.<sup>[11]</sup>

Benz began to sell the vehicle (advertising it as the Benz Patent Motorwagen) in the late summer of 1888, making it the first commercially available automobile in history. The second customer of the Motorwagen was a Parisian bicycle manufacturer<sup>[11]</sup> Emile Roger, who had already been building Benz engines under license from Karl Benz for several years. Roger added the Benz automobiles (many built in France) to the line he carried in Paris and initially most were sold there.

The early 1888 version of the Motorwagen had no gears and could not climb hills unaided. This limitation was rectified after Bertha Benz made her famous trip driving one of the vehicles a great distance and suggested to her husband the addition of another gear.

An important part in the Benz story is this **first long distance automobile trip**, where the entrepreneurial Bertha Benz, supposedly without the knowledge of her husband, on the morning of August 5, 1888, took this vehicle on a 106 km (66 mi) trip from Mannheim to Pforzheim to visit her mother, taking her sons Eugen and Richard with her. In addition to having to locate pharmacies on the way to fuel up, she repaired various technical and mechanical problems and invented brake lining. After some longer downhill slopes, she ordered a shoemaker to nail leather on the brake blocks. Bertha Benz and sons finally arrived at nightfall, announcing the achievement to Karl by telegram. It had been her intention to demonstrate the feasibility of using the

Benz Motorwagen for travel and to generate publicity in the manner now referred to as live marketing. Today, the event is celebrated every two years in Germany with an antique automobile rally. In 2008, Bertha Benz Memorial Route<sup>[13]</sup> was officially approved as a route of industrial heritage of mankind, because it follows Bertha Benz's tracks of the world's first long-distance journey by automobile in 1888. Now everybody can follow the 194 km of signposted route from Mannheim via Heidelberg to Pforzheim (Black Forest) and back. The return trip was along a different, slightly shorter, itinerary, as shown on the maps of the Bertha Benz Memorial Route.

Benz's Model 3 made its wide-scale debut to the world in the 1889 World's Fair in Paris; about twenty-five Motorwagens were built between 1886 and 1893.

## Benz & Cie. expansion

The great demand for stationary, static internal combustion engines forced Karl Benz to enlarge the factory in Mannheim, and in 1886 a new building located on Waldhofstrasse (operating until 1908) was added. *Benz & Cie.* had grown in the interim from 50 employees in 1889 to 430 in 1899.

During the last years of the nineteenth century, *Benz* was the largest automobile company in the world with 572 units produced in 1899.

Because of its size, in 1899, *Benz & Cie.* became a joint-stock company with the arrival of Friedrich von Fischer and Julius Ganß, who came aboard as members of the Board of Management. Ganß worked in the commercialization department, which is somewhat similar to

marketing in contemporary corporations.

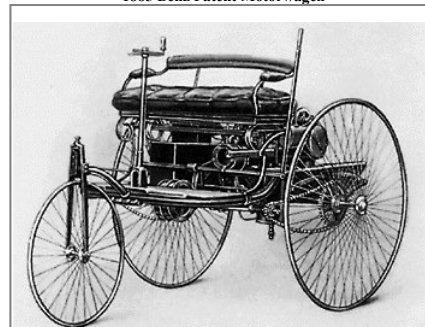
The new directors recommended that Benz should create a less expensive automobile suitable for mass production. In 1893, Karl Benz created the *Victoria*, a two-passenger automobile with a 2.2 kW (3.0 hp) engine, which could reach the top speed of 18 km/h (11 mph) and had a pivotal front axle operated by a roller-chained tiller for steering. The model was successful with 85 units sold in 1893.

The Benz *Velo* also participated in the world's first automobile race, the 1894 Paris to Rouen, where Émile Roger finished 14th, after covering the 126 km (78 mi) in 10 hours 01 minute at an average speed of 12.7 km/h (7.9 mph).

In 1895, Benz designed the first truck in history, with some of the units later modified by the first motor bus company: the *Netphener*, becoming the first motor buses in history.

In 1896, Karl Benz was granted a patent for his design of the first **flat engine**. It had horizontally opposed pistons, a design in which the corresponding pistons reach top dead centre simultaneously, thus balancing each other with respect to momentum. Flat engines with four or fewer cylinders are most commonly called **boxer** engines, *boxermotor* in German, and also are known as

1885 Benz Patent Motorwagen



|   |
|---|
| Three wheels  |
| Tubular steel frame   |
| Rack and pinion steering, connected to a driver end tiller; wheel chained to front axle |
| Electric ignition   |
| Differential rear end gears   |
| (mechanically operated inlet valves)  |
| Water-cooled internal combustion engine   |
| Gas or petrol four-stroke horizontally mounted engine                                   |
| Single cylinder, Bore 116 mm, Stroke 160 mm   |
| Patent model: 958 cc, 0.8 hp, 600 W, 16 km/h  |
| Commercialized model: 1600 cc, ¾ hp, 13 km/h (8.1 mph)                                  |



Official signpost of Bertha Benz Memorial Route, commemorating the world's first long distance journey with a Benz Patent-Motorwagen Number 3 in 1888



Early logo used on automobiles by Karl Benz



Replica of the Benz Patent Motorwagen built in 1885



Engine of the Benz Patent Motorwagen



Karl Benz introduced the Velo in 1894, becoming the first *production* automobile



Bertha Benz with her husband Karl Benz in a Benz Victoria, model 1894

*horizontally opposed engines*. This design is still used by Porsche, Subaru, and some high performance engines used in racing cars. In motorcycles, the most famous boxer engine is found in BMW motorcycles, though the boxer engine design was used in many other models, including Zundapp, Wooler, Douglas Dragonfly, Ratier, Universal, IMZ-Ural, Dnepr, Gnome et Rhône, Chang Jiang, Marusho, and the Honda Gold Wing.

Although Gottlieb Daimler died in March 1900—and there is no evidence that Benz and Daimler knew each other nor that they knew about each other's early achievements—eventually, competition with Daimler Motoren Gesellschaft (DMG) in Stuttgart began to challenge the leadership of Benz & Cie. In October 1900, the main designer of DMG, Wilhelm Maybach, built the engine that would later be used in the *Mercedes-35hp* of 1902. The engine was built to the specifications of Emil Jellinek under a contract for him to purchase thirty-six vehicles with the engine, and for him to become a dealer of the special series. Jellinek stipulated the new engine be named *Daimler-Mercedes* (for his daughter). Maybach would quit DMG in 1907, but he designed the model and all of the important changes. After testing, the first was delivered to Jellinek on December 22, 1900. Jellinek continued to make suggestions for changes to the model and obtained good results racing the automobile in the next few years, encouraging DMG to engage in commercial production of automobiles, which they did in 1902.



First internal combustion engine bus in history: a Benz truck modified by Netphener company (1895)



Logo with laurels used on Benz & Cie automobiles after 1909

Benz countered with *Parsifil*, introduced in 1903 with a vertical twin engine that achieved a top speed of 60 km/h (37 mph). Then, without consulting Benz, the other directors hired some French designers. France was a country with an extensive automobile industry based on Maybach's creations. Because of this action, after difficult discussions, Karl Benz announced his retirement from design management on January 24, 1903, although he remained as director on the Board of Management through its merger with DMG in 1926 and, remained on the board of the new Daimler-Benz corporation until his death in 1929.

He was inducted into the Automotive Hall of Fame in 1984<sup>[14][15]</sup> and the European Automotive Hall of Fame.<sup>[14]</sup>

Benz's sons Eugen and Richard left Benz & Cie. in 1903, but Richard returned to the company in 1904 as the designer of passenger vehicles.



Benz "Velo" model presentation in London 1898

That year, sales of Benz & Cie. reached 3,480 automobiles, and the company remained the leading manufacturer of automobiles.

Along with continuing as a director of Benz & Cie., Karl Benz would soon found another company, *C. Benz Söhne*, (with his son Eugen and closely held within the family), a privately held company for manufacturing automobiles. The brand name used the first initial of the French variant of Benz's first name, "Carl".

## Blitzen Benz

In 1909, the *Blitzen Benz* was built in Mannheim by Benz & Cie. The bird-beaked vehicle had a 21.5-liter (1312ci), 150 kW (200 hp) engine, and on November 9, 1909 in the hands of Victor Hémery of France,<sup>[16]</sup> the land speed racer at Brooklands, set a record of 226.91 km/h (141.94 mph), said to be "faster than any plane, train, or automobile" at the time, a record that was not exceeded for ten years by any other vehicle. It was transported to several countries, including the United States, to establish multiple records of this achievement.



1909 *Blitzen Benz* - built by Benz & Cie., which held the land speed record

## Benz Söhne (1906–1923)



Karl and Bertha Benz c. 1914 (collection of Zenodot Verlagsgesellschaft mbH)

Karl Benz, Bertha Benz, and their son, Eugen, moved 10 kilometres (6.2 mi) east of Mannheim to live in nearby Ladenburg, and solely with their own capital, founded the private company, C. Benz Sons (German: *Benz Söhne*) in 1906, producing automobiles and gas engines. The latter type was replaced by petrol engines because lack of demand.

This company never issued stocks publicly, building its own line of automobiles independently from Benz & Cie., which was located in Mannheim. The *Benz Sons* automobiles were of good quality and became popular in London as taxis.

In 1912, Karl Benz liquidated all of his shares in Benz Sons and left the family-held company in Ladenburg to Eugen and Richard, but he remained as a director of Benz & Cie.

During a birthday celebration for him in his home town of Karlsruhe on November 25, 1914, the seventy-year-old Karl Benz was awarded an honorary doctorate by his alma mater, the *Karlsruhe University*, thereby becoming—Dr. Ing. h. c. Karl Benz.

Almost from the very beginning of the production of automobiles, participation in sports car racing became a major method to gain publicity for manufacturers. At first, the production models were raced and the Benz *Velo* participated in the first automobile race: Paris to Rouen 1894. Later, investment in

developing racecars for motorsports produced returns through sales generated by the association of the name of the automobile with the winners. Unique race vehicles were built at the time, as seen in the photograph here of the Benz, the first mid-engine and aerodynamically designed, *Tropfenwagen*, a "teardrop" body introduced at the 1923 European Grand Prix at Monza.



Logo on family held business production vehicles

In the last production year of the *Benz Sons* company, 1923, three hundred and fifty units were built. During the following year, 1924, Karl Benz built two additional 8/25 hp units of the automobile manufactured by this company, tailored for his personal use, which he never sold; they are still preserved.



1923 Benz "Teardrop" aerodynamic racecar

## Toward Daimler-Benz and the first Mercedes-Benz in 1926

The German economic crisis worsened. In 1923 *Benz & Cie.* produced only 1,382 units in Mannheim, and *DMG* made only 1,020 in Stuttgart. The average cost of an automobile was 25 million marks because of rapid inflation. Negotiations between the two companies resumed and in 1924 they signed an "Agreement of Mutual Interest" valid until the year 2000. Both enterprises standardized design, production, purchasing, sales, and advertising—marketing their automobile models jointly—although keeping their respective brands.

On June 28, 1926, Benz & Cie. and DMG finally merged as the *Daimler-Benz* company, baptizing all of its automobiles, *Mercedes Benz*, honoring the most important model of the DMG automobiles, the 1902 *Mercedes 35 hp*, along with the Benz name. The name of that DMG model had been selected after ten-year-old Mercédès Jellinek, the daughter of Emil Jellinek who had set the specifications for the new model. Between 1900 and 1909 he was a member of DMG's board of management and long before the merger Jellinek had resigned.



Karl Benz was a member of the new *Daimler Benz* board of management for the remainder of his life. A new logo was created, consisting of a three pointed star (representing Daimler's motto: "*engines for land, air, and water*") surrounded by traditional laurels from the Benz logo, and the brand of all of its automobiles was labeled *Mercedes Benz*. Model names would follow the brand name in the same convention as today.

The next year, 1927, the number of units sold tripled to 7,918 and the diesel line was launched for truck production. In 1928, the *Mercedes-Benz SSK* was presented.

On April 4, 1929, Karl Benz died at home in Ladenburg at the age of eighty-four from a bronchial inflammation. Until her death on May 5, 1944, Bertha Benz continued to reside in their last home. Members of the family resided in the home for thirty more years. The Benz home now has been designated as historic and is used as a scientific meeting facility for a nonprofit foundation, the *Gottlieb Daimler and Karl Benz Foundation*, that honors both Bertha and Karl Benz for their roles in the history of automobiles.



Last home of Karl and Bertha Benz, now the location of the Gottlieb Daimler and Karl Benz Foundation in Ladenburg, in Baden-Württemberg



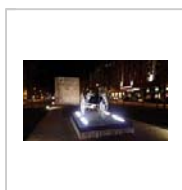
The Carl Benz monument in Mannheim (2015)

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The Carl Benz monument in Mannheim (2015)



The Carl Benz monument in Mannheim, in the evening (2015)

## In popular culture

In 2011, a dramatized television movie about the life of Karl and Bertha Benz was made named *Carl & Bertha* which premiered on 11 May<sup>[17]</sup> and was aired by Das Erste on 23 May.<sup>[18][19]</sup> A trailer of the movie<sup>[20]</sup> and a "making of" special were released on YouTube.<sup>[21]</sup>

## See also

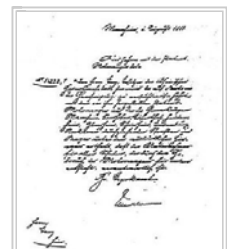
- Benz (unit)
- Bertha Benz, his wife and automotive pioneer
- Bertha Benz Memorial Route
- German inventors and discoverers
- History of the internal combustion engine
- Siegfried Marcus

## Notes

- http://www.geographic.hu/index.php?act=napi&rov=5&id=6102 1844. november 25-én Karlsruheban született Karl Friedrich Vaillant, a Benz autógyár alapítója. Mivel születésekor anyja még hajadon volt, ezért az ő neve után anyakönyvezték. Vaillant csak később vette fel apja nevét, a Benz-et.
- http://www.personatti.com/card.data/Karl%20Benz\_10080459.htm Realname:., Karl Friedrich Michael Vaillant. Birthdate:., 25 November 1844. Deathdate:., 4 April 1929. Birthplace:., Germany, Baden-württemberg, Karlsruhe ...
- http://www.morgenweb.de/region/mannheim/daimler\_Benz/622204232.html Bei seiner Geburt am 25. November 1844 in Karlsruhe erhielt der spätere Auto-Pionier den Namen Karl Friedrich Michael Vaillant. Seine Mutter Josephine Vaillant heiratete ein Jahr danach Johann Georg Benz, den Vater des Kindes.
- http://www.egoproject.nl/star/automerk%20symbolen.htm Tegelijkertijd met Daimler was Karl Benz ook zeer succesvol in het produceren van auto's. Karl werd geboren als Karl Friedrich Michael Vaillant in 1844 in Muelburb; tegenwoordig Karlsruheen als zoon van Josephine Vaillant en treininmachinist Johann George Benz. Hij kreeg de naam van zijn moeder, omdat zijn ouders pas een jaar na zijn geboorte met elkaar trouwden. Toen Karl 2 jaar oud was verongelukte zijn vader in een spoorweggongeluk.
- http://linx3314.wordpress.com/feed/ Karl Benz wurde als Karl Friedrich Michael Vaillant in heutige Kalruher Stadtteil Mühlburg geboren. Sein Mutter hat ein man bei der name Johann Georg Benz.l Er storp eine veile nach das hochzeit.
- http://www.zeno.org/nid/20007927983 Benz, Carl Friedrich: Lebensfahrt eines deutschen Erfinders. Die Erfindung des Automobils, Erinnerungen eines Achtzigjährigen. Leipzig 1936, S. 13-17
- Karl** is the spelling of his first name on all of his official personal and municipal documents throughout his life, such as birth, school, honorary doctorate, the Baden State Metal certificate, and on his family grave marker as displayed to the right. **Carl** is the spelling variant he used for one company. C. Benz Söhne, he formed with his son Eugen after leaving the active management of his long standing company, but remaining on its board of directors for the rest of his life (through its merger with Daimler Motoren Gesellschaft in which the two companies became Daimler-Benz), and it is used for his autobiography by a recent publisher. This spelling variant has been copied often and may be found frequently.
- (German) Karl Benz's life as described on daimler.com (http://www.daimler.com/dccom/0-5-1333261-49-1279445-1-0-0-0-1-36-7145-0-0-0-0-0-0.html)
- Mercedes-Benz, Home of Mercedes-Benz Luxury Automobiles (http://www.mbusa.com/heritage/karl-benz.do) at www.mbusa.com
- G.N. Georgano *Cars: Early and Vintage, 1886-1930*. (London: Grange-Universal, 1985)
- G.N. Georgano
- DRP's patent No. 37435 (http://home.arcor.de/carsten.popp/DE\_00037435\_A.pdf) (PDF, 561 kB, German) was filed January 29, 1886 and granted November 2, 1886, thus taking effect January 29.
- "Bertha Benz Memorial Route".



The Benz Patent-Motorwagen Number 3 of 1888, used by Bertha Benz for the first long distance journey by automobile (more than 106 km or sixty miles)



An official license to operate the Benz Patent Motorwagen on the public roads was issued by Großherzoglich Badisches Bezirksamt on August 1, 1888

14. "European Automotive Hall of Fame". Mercedes Benz. Retrieved March 9, 2016.
15. "Karl Benz". *Hall of Fame Inductees*. Automotive Hall of Fame. 1984. Retrieved March 4, 2016.
16. Northey, Tom, "Land Speed Record", in *The World of Automobiles* (London: Orbis Publishing, 1974), Volume 10, p.1163.
17. (German) Genialer Tüftler und bedingungslose Unterstützerin (http://www.swr.de/carlundbertha), SWR
18. "Carl & Bertha (TV Movie 2011)". *IMDb*. 25 May 2011.
19. (German) ARD-Themenwoche "Der mobile Mensch" Carl & Bertha (http://programm.daserste.de/pages/programm/detail.aspx?id=30C8FA62CEBE516F83D1AE6F7AE2B2C0)
20. (German) Carl & Bertha - Eine Liebe für das Automobil - SWR - DAS ERSTE (https://www.youtube.com/watch?v=gS9\_XyEwyl4) on YouTube
21. Making of 'Carl & Bertha' (Film) (https://www.youtube.com/watch?v=yHIFE4vOeEo) on YouTube

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- Seidel, Winfried A. (2005). *Carl Benz : eine badische Geschichte ; die Vision vom "pferdelosen Wagen" verändert die Welt* (in German). Weinheim: Ed. Diesbach. ISBN 3-936468-29-X. (biography) Image of cover. (German) (http://www.amazon.de/dp/393646829X) [3] (http://www.d-nb.de/eng/index.htm)

*Carl Benz: a Baden history; the vision of the "horseless car" changes the world*
- Siebertz, Paul (1950). *Karl Benz : Ein Pionier der Motorisierung* (in German). Stuttgart: Reclam. [4] (http://www.d-nb.de/eng/index.htm)

*Karl Benz : A pioneer of motorization*

## External links

- Brief biographies of Karl Benz (http://www.mercedes-benz-classic.com/content/classic/mpc/mpc\_classic\_website/en/mpc\_home/mbc/home/knowledge/overview/karl\_benz.html) and Bertha Benz (http://www.mercedes-benz-classic.com/content/classic/mpc/mpc\_classic\_website/en/mpc\_home/mbc/home/knowledge/overview/bertha\_benz.html), with portraits, an extensive archive, and detailed histories presented at the Mercedes-Benz Museum.[5] (http://www.mercedes-benz.com/content/mbcom/international/international\_website/en/com/Brandworld\_Museum.html)
- Mercedes-Benz corporate archives [6] (http://www.daimlerchrysler.com/dccom/0-5-7189-1-56989-1-0-0-0-0-8-7145-0-0-0-0-0-0-0.html), company archives [7] (http://www.daimlerchrysler.com/dccom/0-5-7189-1-10828-1-0-0-56989-0-0-135-7145-0-0-0-0-0-0-0.html), history [8] (http://www.daimlerchrysler.com/dccom/0-5-7168-1-9837-1-0-0-0-0-8-7145-0-0-0-0-0-0-0.html), media management archives [9] (http://www.daimlerchrysler.com/dccom/0-5-7189-1-10829-1-0-0-56989-0-0-135-7145-0-0-0-0-0-0-0.html), and publications [10] (http://www.daimlerchrysler.com/dccom/0-5-7189-1-10834-1-0-0-56989-0-0-135-7145-0-0-0-0-0-0-0.html)
- copies of the honorary doctorate (http://www.automuseum-ladenburg.de/cms/images/ehrendoktor\_small.jpg) and Baden State medal in gold (http://www.automuseum-ladenburg.de/cms/images/staatsmedallie\_small.jpg), both awarded to Karl Benz in his lifetime.
- Das Automuseum Dr. Carl Benz in der alten Benz Fabrik (http://www.automuseum-ladenburg.de/) (German) is the *Dr. Carl Benz Auto Museum* created by a private group in 1996 [11] (http://translate.google.com/translate?hl=en&sl=de&u=http://www.mercedes-Benz.de/content/germany/mpc/mpc\_germany\_website/de/home\_mpc/passenger\_cars/home/passenger\_cars\_world/heritage/museum/historical\_places/car\_museum/3Fq%3DAutomuseum%2BDr.%2BCarl%2BBenz%2B%26start%3D10%26hl%3Den%26sa%3DNin) in a former Benz factory for an ancillary business founded with his sons in Ladenburg, which was separate from his major companies. The company opened in 1906 and closed in 1923, the site has a description of this museum and contemporary photographs [12] (http://www.automuseum-ladenburg.de/cms/templates/gruen/random/3.jpg) with "C. Benz SÖHNE KG" painted on the building, which contains historical photographs, some restored automobiles, and a chronology (http://www.automuseum-ladenburg.de/cms/index.php?option=com\_content&task=view&id=14&Itemid=19) of the life of Karl Benz
- Karl Benz on 3-wheelers.com (http://www.3wheelers.com/Benz.html)
- Bertha Benz Memorial Route (http://www.bertha-Benz.de/)
- Prof. John H. Lienhard on BERTHA Benz's RIDE (http://www.uh.edu/engines/epi2402.htm)
- The Karl Benz family grave site in Ladenburg (http://www.kurpfalz-tourist.de/web-data/Bilder/friedhof\_1.jpg) The urn contains the ashes of their son, Richard Benz, and the inscription on the gravestone reads: Dr. Ing. h. c. Karl Benz (https://web.archive.org/web/20091027082313/http://geocities.com/MotorCity/Lane/4444/) at the Wayback Machine (archived October 27, 2009)
- The Gottlieb Daimler and Karl Benz Foundation (http://www.daimler-Benz-stiftung.de/home/events/en/start.html) founded in 1986 at the last residence of Bertha and Karl Benz in Ladenburg.

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