

Chapter 1 : Ford Motor Company Timeline | calendrierdelascience.com

The early history of the automobile can be divided into a number of eras, based on the prevalent means of propulsion. Later periods were defined by trends in exterior styling, size, and utility preferences.

Print Who made the first cars? Beginning in the s, many people tried to make cars that would run on steam. Some early steam cars worked well, and some did not. Some were fire pumpers that moved by themselves, and others were small locomotives with road wheels. Beginning in the s, inventors tried very hard to make cars that would run well enough to use every day. These experimental cars ran on steam, gasoline, or electricity. By the s, Europeans were buying and driving cars made by Benz, Daimler, Panhard, and others, and Americans were buying and driving cars made by Duryea, Haynes, Winton, and others. By gasoline cars were more popular than steam or electric cars because they were easier to use and could travel further without adding fuel. By gasoline cars became larger and more powerful, and some had folding tops to keep drivers and passengers out of the rain. How did the first cars work? A steam car burned fuel that heated water in a boiler. This process made steam that expanded and pushed pistons, which turned a crankshaft. An electric car had a battery that powered a small electric motor, which turned a drive shaft. A gasoline car ignited fuel that caused a small explosion inside each cylinder. This explosion pushed the piston and turned a crankshaft connected to the wheels by a chain or drive shaft. Who drove the first cars? In wealthy people bought cars for pleasure, comfort, and status. Many doctors bought small, affordable cars because they were more dependable than horses and easier to keep ready. Rural Americans liked cars because they could cover long distances without depending on trains. They carried produce to market, went to stores and movies in town, and even used their cars to plow fields. Families in towns and cities liked cars because they were handy for errands, going to the train station, visiting relatives, going to church, and going on drives in the country. Young people liked cars because they could go to movies, restaurants, and other fun places instead of staying at home with their parents. Why do so many people use cars? Cars are fast, comfortable, nice looking, and fun to drive. They can go almost anywhere, and they are always ready for use. In many ways, driving is easier than walking, biking, or riding in a train, bus, or airplane. But owning a car is a big responsibility. It takes a lot of money to buy one and keep it running, and drivers must be trained, licensed, and always alert to avoid mistakes and accidents. It takes a lot of space to park cars, and too many cars cause congestion on roads and in parking lots. For most Americans, cars are a favorite way to travel, but there will always be a need for other types of transportation. What was different about the Ford Model T? Courtesy of the National Museum of American History. The Ford Model T, made between and , cost less than other cars, but it was sturdy and practical. It ran well on dirt roads and fields because it could twist as it rolled over bumps. The Model T looked like an expensive car but actually was very simply equipped. From to , it only came in black because black paint dried faster than other colors, making it possible to build and sell more Model Ts. For all of these reasons, more Model Ts were sold than any other type of car at the time—a total of just over 15 million. Farmers, factory workers, school teachers, and many other Americans changed from horses or trains to cars when they bought Model Ts. Why do most cars today run on gasoline? The gasoline engine has been reliable, practical, and fairly efficient since about . It is easier to control than a steam engine and less likely to burn or explode. A gasoline car can go much further on a tank of gasoline than an electric car can go between battery charges. Gasoline engines have been improved by the use of computers, fuel injectors, and other devices. But growing concern about chemicals that gasoline engines release into the air i. How many cars are in the Smithsonian? The automobile collection attempts to include significant automotive milestones as cars changed from horseless carriages to an intrinsic part of American life. The Smithsonian has been collecting cars since , and almost all of them have been given by people or businesses. Where can I see more early cars in person and on the Web? Where else can I find out about cars on the Web?

The Green Bay car was the fastest but broke down and the Oshkosh car finished with an average speed of 6 mph. From this time until the end of the century, nearly every community in America had a mad scientist working on a steam car.

Kiichiro Toyoda , president of the Toyota Motor Corporation " Mass production at a Toyota plant in the s Large-scale, production-line manufacturing of affordable cars was started by Ransom Olds in at his Oldsmobile factory in Lansing, Michigan and based upon stationary assembly line techniques pioneered by Marc Isambard Brunel at the Portsmouth Block Mills , England, in The assembly line style of mass production and interchangeable parts had been pioneered in the U. Only Japan black would dry fast enough, forcing the company to drop the variety of colors available before , until fast-drying Duco lacquer was developed in The combination of high wages and high efficiency is called " Fordism ," and was copied by most major industries. The efficiency gains from the assembly line also coincided with the economic rise of the United States. The assembly line forced workers to work at a certain pace with very repetitive motions which led to more output per worker while other countries were using less productive methods. In the automotive industry, its success was dominating, and quickly spread worldwide seeing the founding of Ford France and Ford Britain in , Ford Denmark , Ford Germany ; in , Citroen was the first native European manufacturer to adopt the production method. Soon, companies had to have assembly lines, or risk going broke; by , companies which did not have them had disappeared. Key developments included electric ignition and the electric self-starter both by Charles Kettering , for the Cadillac Motor Company in " , independent suspension , and four-wheel brakes. Since the s, nearly all cars have been mass-produced to meet market needs, so marketing plans often have heavily influenced car design. It was Alfred P. Sloan who established the idea of different makes of cars produced by one company, called the General Motors Companion Make Program , so that buyers could "move up" as their fortunes improved. Reflecting the rapid pace of change, makes shared parts with one another so larger production volume resulted in lower costs for each price range. For example, in the s, LaSalles , sold by Cadillac , used cheaper mechanical parts made by Oldsmobile ; in the s, Chevrolet shared hood, doors, roof, and windows with Pontiac ; by the s, corporate powertrains and shared platforms with interchangeable brakes , suspension, and other parts were common. Even so, only major makers could afford high costs, and even companies with decades of production, such as Apperson , Cole , Dorris , Haynes , or Premier , could not manage: Most British small-car assemblers, from Abbey to Xtra , had gone under. Only a handful of companies were producing vehicles in limited numbers, and these were small, three-wheeled for commercial uses, like Daihatsu , or were the result of partnering with European companies, like Isuzu building the Wolseley A-9 in Toyota , Nissan , Suzuki , Mazda , and Honda began as companies producing non-automotive products before the war, switching to car production during the s. Subaru , meanwhile, was formed from a conglomerate of six companies who banded together as Fuji Heavy Industries , as a result of having been broken up under keiretsu legislation. Fuel and propulsion technologies See also: Alternative fuel vehicle Most cars in use in the s are propelled by an internal combustion engine, fueled by the deflagration rather than detonation combustion of hydrocarbon fossil fuels, mostly gasoline petrol and diesel , as well as some Autogas and CNG. Hydrocarbon fuels cause air pollution and contribute to climate change and global warming. Efforts to improve or replace existing technologies include the development of hybrid vehicles , plug-in electric vehicles and hydrogen vehicles. Vehicles using alternative fuels such as ethanol flexible-fuel vehicles and natural gas vehicles are also gaining popularity in some countries. Cars for racing or speed records have sometimes employed jet or rocket engines, but these are impractical for common use. Oil consumption in the twentieth and twenty-first centuries has been abundantly pushed by car growth; the " oil glut even fuelled the sales of low-economy vehicles in OECD countries. Car controls In the Ford Model T the left-side hand lever sets the rear wheel parking brakes and puts the transmission in neutral. The lever to the right controls the throttle. The lever on the left of the steering column is for ignition timing. The left foot pedal changes the two forward gears while the central pedal controls reverse. The right pedal is the brake. Cars are equipped with controls used for driving, passenger comfort and safety, normally operated by a combination of

the use of feet and hands, and occasionally by voice on s-era cars. Controls are evolving in response to new technologies, for example the electric car and the integration of mobile communications. Since the car was first invented, its controls have become fewer and simpler through automation. For example, all cars once had a manual controls for the choke valve, clutch, ignition timing , and a crank instead of an electric starter. However new controls have also been added to vehicles, making them more complex. Examples include air conditioning , navigation systems , and in car entertainment. These include headlights , which are used to illuminate the way ahead and make the car visible to other users, so that the vehicle can be used at night; in some jurisdictions, daytime running lights ; red brake lights to indicate when the brakes are applied; amber turn signal lights to indicate the turn intentions of the driver; white-colored reverse lights to illuminate the area behind the car and indicate that the driver will be or is reversing ; and on some vehicles, additional lights e. Interior lights on the ceiling of the car are usually fitted for the driver and passengers. Some vehicles also have a trunk light and, more rarely, an engine compartment light. Car body style Most cars are designed to carry multiple occupants, often with four or five seats. Cars with five seats typically seat two passengers in the front and three in the rear. Full-size cars and large sport utility vehicles can often carry six, seven, or more occupants depending on the arrangement of the seats. On the other hand, sports cars are most often designed with only two seats. Car safety , Traffic accident , Low speed vehicle , and Epidemiology of motor vehicle collisions Result of a serious car accident Road traffic accidents are the largest cause of injury-related deaths worldwide. Costs and benefits Main articles: Economics of car usage , Car costs , and Effects of the car on societies Road congestion is an issue in many major cities. The benefits may include on-demand transportation, mobility, independence and convenience. The societal benefits may include: The ability for humans to move flexibly from place to place has far-reaching implications for the nature of societies. It shows the significant growth in BRIC. World map of passenger cars per people While there are different types of fuel that may power cars, most rely on gasoline or diesel. The United States Environmental Protection Agency states that the average vehicle emits 8, grams of the greenhouse gas carbon dioxide CO₂ per gallon of gasoline. The average vehicle running on diesel fuel will emit 10, grams of carbon dioxide. High fuel taxes may provide a strong incentive for consumers to purchase lighter, smaller, more fuel-efficient cars, or to not drive. Light truck standards have changed more frequently, and were set at According to the American Surface Transportation Policy Project nearly half of all Americans are breathing unhealthy air. Their study showed air quality in dozens of metropolitan areas has worsened over the last decade. More recent road developments are including significant environmental mitigations in their designs such as green bridges to allow wildlife crossings , and creating wildlife corridors. Growth in the popularity of vehicles and commuting has led to traffic congestion. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed. Research into future alternative forms of power include the development of fuel cells , Homogeneous charge compression ignition HCCI , stirling engines , [60] and even using the stored energy of compressed air or liquid nitrogen. New materials which may replace steel car bodies include duralumin , fiberglass , carbon fiber , biocomposites , and carbon nanotubes. Telematics technology is allowing more and more people to share cars, on a pay-as-you-go basis, through car share and carpool schemes. Communication is also evolving due to connected car systems. According to urban designer and futurist Michael E. This would also allow for getting the appropriate vehicle for the particular needâ€”a bus could come for a group of people, a limousine could come for a special night out, and a Segway could come for a short trip down the street for one person. Children could be chauffeured in supervised safety, DUIs would no longer exist, and 41, lives could be saved each year in the US alone. Open source car There have been several projects aiming to develop a car on the principles of open design , an approach to designing in which the plans for the machinery and systems are publicly shared, often without monetary compensation. The projects include OScar , Riversimple through 40fires. Some car hacking through on-board diagnostics OBD has been done so far. Services like car sharing offering a residents to "share" a vehicle rather than own a car in already congested neighborhoods. In , more than 70 million motor vehicles, including cars and commercial vehicles were produced worldwide. Of the major markets, China, Russia, Brazil and India saw the most rapid growth. About million vehicles are in use in the United States. The numbers are increasing rapidly, especially

in China and India. Many of these negative impacts fall disproportionately on those social groups who are also least likely to own and drive cars. In , with rapidly rising oil prices, industries such as the automotive industry, are experiencing a combination of pricing pressures from raw material costs and changes in consumer buying habits. The industry is also facing increasing external competition from the public transport sector, as consumers re-evaluate their private vehicle usage. China sales had increased to

Chapter 3 : Car Facts for Kids - Cool Science for Kids

The history of the automobile reflects an evolution that took place worldwide involving many different innovators. Automobile Defined An automobile or car is a wheeled vehicle that carries its own motor and transports passengers.

June 4, First pneumatic car tire invented. Michelin introduces the first pneumatic car tire, which is a tire made of reinforced rubber and filled with compressed air. November 16, Ford introduces the Tin Lizzie. The car is generally considered the first affordable automobile. June 4, First four wheel brake system implemented. The Scottish made Argyll is the first automobile fitted for four wheel brakes. The front brakes are operated by a foot pedal, while the back brakes are controlled by a hand lever. May 30, First electric traffic light invented. Police officer Lester Wire invents the first electric traffic light. The first actual light was installed in Cleveland, Ohio in Ford Motor Company invents and implements that first moving assembly line designed for cars. The production of automobiles is radically transformed, leading to the production of more cars than ever before. April 28, New land speed record set. October 8, First car radio installed. Galvin Manufacturing Corporation, under the direction of Paul V. Galvin and Joseph E. Glavin invent and install the first car radio. June 4, First diesel passenger car introduced. Mercedes-Benz introduces the D, the first diesel passenger car. By , there was a fifteen month waiting list for the car. June 4, Volkswagen starts producing the famous Beetle car in Germany. Nash Motor Company installs the first air conditioner system. September 16, Land speed record broken. October 30, Lamborghini was founded. The popular automobile company Lamborghini was founded by Ferruccio Lamb. High-end sports cars began hitting the market. June 19, First airbag installed. October 4, Land speed record broken. The car was propelled by a Rolls Royce jet engine. October 15, Land speed record broken once more. May 30, The Bugatti Veyron

Chapter 4 : Early Cars: Fact Sheet for Children | Smithsonian Institution

Automobile - History of the automobile: Unlike many other major inventions, the original idea of the automobile cannot be attributed to a single individual. The idea certainly occurred long before it was first recorded in the Iliad, in which Homer (in Alexander Pope's translation) states that Vulcan in a single day made 20 tricycles, which Leonardo da Vinci considered the idea of a self.

He used elements of the Falcon in his design, most notable are the large recessed headlights, split front bumper, open wheel wells and rounded front fenders. There are also subtle elements taken from the Lincoln continental, most notable is overall long boxy shape and the small limo size rear window. As close as this is to the original CAR, it is not completely accurate, There are small things like missing chrome around the windshield and more noticeable there are no tail lights on the 1: The tail lights can be seen on the car in the movie when it crashes through a house to take another victim and drives off. A matte finish with polished edges would have gave more realism to the model. Without a sequel to the movie, there is little chance there would ever be a Hot Wheels Elite version of "The Car". However "The Car" was unforgettable The un-named, driver less, evil car. It was aggressive, fast, and it killed for no reason. It arrived with the wind. It had the horn of a semi truck, and an engine roar that could best be described as Powerful and angry. George Barris showed no special interest in it. He designed and built several for the movie, a quick simple basic design by his standards. He treated the car like a step child. You will always see certain cars in the publicity photos George Barris has taken over the years. Many faded into the past forgotten in time. Except one His baby was the " Batmobile". The car design that put him in the history books. George Barris may have felt "The Car" was too "understated". Or maybe it was that fact that the movie did so poorly in the box office and not many people knew of it. The car was not a popular seller, it was released in the 1: Over the years the movie "The Car": One marketing quirk was naming it "The Car" instead of something more definable like; "The Evil Car" The generic name made it a non de script ERTL car, which made it hard to identify and very hard to find. Over two decades after the movie "The Car" was finally made available in 1: It has a detailed interior. Steerable wheels, opening doors and trunk. The Car is a high gloss jet black with massive double decked chromed bumpers. Deep dish chrome rims and radial tires. Detailed Chassis and under carriage Dual exhaust. Highly detailed engine compartment Opening hood trunk and doors. The Car did not receive the publics support as many models sat on shelves and in stock rooms for years. It had been nearly 20 years since the movie was released. Almost another decade had past before "The Car" begin to get the attention it deserved. Ford modeled the Thunderbird on the Futura. The car looked simple and undefinable. But it was a complex design. Barris owned the company but he had many talented people working for him, all of which could have had a hand in designing "The Car". The movie itself was underrated and placed into the collection of forgettable films. However "The Car" remains unforgettable. The un-named, driver less, evil car. The movie was not a hit. Due largely to a low budget this film was made in the desert, Cursed with a weak script and bad acting, the film critics berated this movie. People did not want to be frightened, They wanted to be awed by CGI special effects wizards. As people became more intelligent they needed a movie to challenge their senses as well as entertain them. Powered by beasts controlled by man. A love hate relationship has always existed between man and his machine and it was always the machine that took the beating. What if the tables were turned and the machine was the one doing the beating?

Chapter 5 : The Cars That Made America - HISTORY

The History of Cars Timeline created by TimePat. May 14, The first motor car was invented Karl Benz had finished the first automobile and was ready to test drive.

Bring fact-checked results to the top of your browser search. History of the automobile Unlike many other major inventions, the original idea of the automobile cannot be attributed to a single individual. Leonardo da Vinci considered the idea of a self-propelled vehicle in the 15th century. In a Swiss clergyman, J. Genevois, suggested mounting small windmills on a cartlike vehicle, their power to be used to wind springs that would move the road wheel. Two-masted wind carriages were running in the Netherlands in 1620, and a speed of 20 miles 30 km per hour with a load of 28 passengers was claimed for at least one of them. Other inventors considered the possibilities of clockwork. Probably in a carriage propelled by a large clockwork engine was demonstrated in Paris by the versatile inventor Jacques de Vaucanson. The air engine is thought to have originated with a 17th-century German physicist, Otto von Guericke. Guericke invented an air pump and was probably the first to make metal pistons, cylinders, and connecting rods, the basic components of the reciprocating engine. In the 17th century a Dutch inventor, Christiaan Huygens, produced an engine that worked by air pressure developed by explosion of a powder charge. Denis Papin of France built a model engine on the vacuum principle, using the condensation of steam to produce the vacuum. An air engine was patented in England in 1781, and a grid of compressor stations was proposed to service vehicles. An air-powered vehicle is said to have been produced in 1784. Steam propulsion was proposed as early as the 16th century, and in Ferdinand Verbiest, a Belgian Jesuit missionary to China, made a model steam carriage based on a principle suggestive of the modern turbine. In the 18th century a French scientist, Philippe Lebon, patented a coal-gas engine and made the first suggestion of electrical ignition. In Paris, Isaac de Rivas made a gas-powered vehicle in 1784; his engine used hydrogen gas as fuel, the valves and ignition were operated by hand, and the timing problem appears to have been difficult. The age of steam Most historians agree that Nicolas-Joseph Cugnot of France was the constructor of the first true automobile. Cugnot was an artillery officer, and the more or less steam-tight pistons of his engine were made possible by the invention of a drill that accurately machined cannon bores. Because of the heavy weight of the steam chamber in the front, it had a tendency to tip over when not hauling cannons, which was what it was designed to do. Steam buses were running in Paris about 1825. Oliver Evans of Philadelphia ran an amphibious steam dredge through the streets of that city in 1789. Less well-known were Nathan Read of Salem, Massachusetts, and Apollos Kinsley of Hartford, Connecticut, both of whom ran steam vehicles during the period 1790-1800. In March 1809 the magazine *Scientific American* described tests of a vehicle that weighed only 3,000 pounds about 1,360 kg and achieved a speed of 20 miles 30 km per hour. Another American, Frank Curtis of Newburyport, Massachusetts, is remembered for building a personal steam carriage to the order of a Boston man who failed to meet the payment schedule, whereupon Curtis made the first recorded repossession of a motor vehicle. English inventors were active, and by the 1820s the manufacture and use of steam road carriages was flourishing. Watt was opposed to the use of steam engines for such purposes; his low-pressure steam engine would have been too bulky for road use in any case, and all the British efforts in steam derived from the earlier researches of Thomas Savery and Thomas Newcomen. Sir Goldsworthy Gurney, the first commercially successful steam carriage builder, based his design upon an unusually efficient boiler. He was not, however, convinced that smooth wheels could grip a roadway, and so he arranged propulsion on his first vehicle by iron legs digging into the road surface. His second vehicle weighed only 3,000 pounds 1,360 kg and was said to be capable of carrying six persons. He made trips as long as 84 miles 135 km in a running time of 9 hours and 30 minutes and once recorded a speed of 17 miles 27 km per hour. Gurney equipment was used on the Gloucester-Cheltenham service of four daily round trips; under favourable conditions the equipment could complete the 9 miles 15 km in 45 minutes. Between February 27 and June 22, 1825, steam coaches ran 4,000 miles 6,437 km on this route, carrying some 3,000 passengers. The equipment was noisy, smoky, destructive of roadways, and admittedly dangerous; hostility arose, and it was common for drivers to find the way blocked with heaps of stones or felled trees. Nevertheless, numerous passengers had been carried by steam carriage before the

railways had accepted their first paying passenger. The most successful era of the steam coaches in Britain was the s. Ambitious routes were run, including one from London to Cambridge. But by it was clear that the steam carriages had little future. The crushing blow was the Locomotives on Highways Act of , which reduced permissible speeds on public roads to 2 miles 3 km per hour within cities and 4 miles 6 km per hour in rural areas. This legislation was known as the Red Flag Act because of its requirement that every steam carriage mount a crew of three, one to precede it carrying a red flag of warning. The act was amended in , but it was not repealed until , by which time its provisions had effectively stifled the development of road transport in the British Isles. The decline of the steam carriage did not prevent continued effort in the field, and much attention was given to the steam tractor for use as a prime mover. Beginning about , Britain was the scene of a vogue for light steam-powered personal carriages; if the popularity of these vehicles had not been legally hindered, it would certainly have resulted in widespread enthusiasm for motoring in the s rather than in the s. Some of the steamers could carry as few as two people and were capable of speeds of 20 miles 32 km per hour. The public climate remained unfriendly, however. The car designed by them and sold as the Locomobile became the first commercially successful American-made automobile about 1, were built in It is estimated that in the year there were still some steam cars in the United States, most of them in running order. Early electric automobiles At the beginning of the 20th century, 40 percent of American automobiles were powered by steam, 38 percent by electricity, and 22 percent by gasoline. It was followed by other three-wheelers in London and Boston The first American battery-powered automobile, built in Des Moines , Iowa, c. The popularity of the electric car was hampered by a lack of battery-charging infrastructure. Prior to , few private homes, even in cities, were wired with electricity, and community charging stations and battery exchange schemes failed to catch on. By the problem had been overcome, and the electric had its heyday. Some 20 companies were in the trade and 33, electric cars were registered in the United States, the country in which they had maximum acceptance. It was another application of battery power, the electric self-starter, that did as much as anything to doom the electric car by eliminating the dreaded hand crank and making the internal-combustion engine car amenable to operation by women. Further, the electric had never really been suited to other than limited urban use because of its low speed 15â€”20 miles, or 24â€”32 km, per hour , short range 30â€”40 miles, or about 50â€”65 km , and lengthy time required for recharging. The heyday of the electric car in America had ended by , although a few manufacturers offered them on special order until World War II. The war, however, gave rise to experiments with small electric cars in fuel-starved France and resulted in extensive use of electric vehicles for milk delivery in Britain, which continued in urban areas there for the rest of the century. Development of the gasoline car Most authorities are inclined to honour Karl Benz and Gottlieb Daimler of Germany as the most important pioneer contributors to the gasoline-engine automobile. Benz ran his first car in , Daimler in Benz and Daimler did persistâ€”indeed, to such purpose that their successor firm of Daimler AG can trace its origins as far back as Oddly, Benz and Daimler never met. The four-stroke principle upon which most modern automobile engines work was discovered by a French engineer, Alphonse Beau de Rochas , in , a year before Lenoir ran his car from Paris to Joinville-le-Pont. The four-stroke cycle is often called the Otto cycle, after the German Nikolaus August Otto , who designed an engine on that principle in De Rochas held prior patents, however, and litigation in the French courts upheld him. The reaction was so violent that it occurred to him to use it as a power source. His first vehicle was a handcart marrying a two-cycle engine geared to the rear wheels without any intervening clutch. It was started by having a strong man lift the rear end while the wheels were spun, after which it ran for a distance of about metres about yards. In the Austrian Automobile Club arranged an exhibition of motorcars, and Marcus was a guest of honour. He persisted in his efforts to build a gasoline-fueled vehicle in the face of many obstacles, including lack of money to the point of poverty and the bitter objections of his associates, who considered him unbalanced on the subject. Benz ran his first car, a three-wheeler powered by a two-cycle, one-cylinder engine, on a happy and triumphant day early in He circled a cinder track beside his small factory, his workmen running beside the car, his wife running too, clapping her hands; the little machine made four circuits of the track, stalling only twice before a broken chain stopped it. Gradually, the soundness of his design and the quality and care that went into the material and the construction of his cars bore weight, and they sold well. That year he was employing some 50 workmen to

build the tricycle car; in he began to make a four-wheeler. In his way, Benz was almost as dogmatic and reactionary as Marcus had been; he objected to redesign of his original cars, and some authorities believe that he was never really convinced that his original concepts had been improved upon. In Germany he worked for various engineering and machining concerns, including the Karlsruhe Maschinenbaugesellschaft, a firm that much earlier had employed Benz. During the next decade, important work was done on the four-stroke engine. They set up a shop in Bad Cannstatt and built an air-cooled, one-cylinder engine. The first high-speed internal-combustion engine, it was designed to run at revolutions per minute rpm. Daimler and Maybach built a second engine and mounted it on a wooden bicycle fitted with an outrigger, which first ran on November 10, 1885. The next year the first Daimler four-wheeled road vehicle was made: Daimler appears to have believed that the first phase of the automobile era would be a mass conversion of carriages to engine drive; Benz apparently thought of the motorcar as a separate device. In they entered the field independently, and the Panhard-Levassor designs of 1894 are of primary importance. They were true automobiles, not carriages modified for self-propulsion. It was based on a framework of light tubing, it had the engine in the rear, its wheels were driven by a belt, and it was steered by a tiller. Remarkably, it had four speeds. This car had obvious commercial value, and in the following year the Daimler Motoren-Gesellschaft was founded. The British Daimler automobile was started as a manufactory licensed by the German company but later became quite independent of it. To distinguish machines made by the two firms in the early years, the German cars are usually referred to as Cannstatt-Daimlers. The Daimler and Benz firms were merged in 1909, and products thereafter have been sold under the name Mercedes-Benz. The Italians were later in the field: Giovanni Agnelli founded Fiat SpA in 1899, saw it grow into one of the weightiest industrial complexes in the world, and maintained personal control until his death in 1945. A De Dion motor car, c. 1880, Library of Congress, Washington, D. C. The oldest automobile still in running order at the beginning of the 21st century was thought to be an Hammel, made in Denmark. It is the oldest known automobile still in running condition. Selden as inventor of the automobile. Selden had filed his application on May 8, 1895, although he had not at that time built an automobile. He was successful in an effort to keep the patent pending for 16 years.

Chapter 6 : History Of Cars For Kids | Car History Facts | DK Find Out

Car crazy! Photo: You don't have to be crazy to drive this, but it helps. This is the Railton Mobil Special, a s land-speed record calendrierdelascience.com by John Cobb, it was the first car to go faster than km/h (mph).

Visit Website Nothing illustrates the superiority of European design better than the sharp contrast between this first Mercedes model and Ransom E. Olds' Model A. Visit Website The central problem of automotive technology over the first decade of the twentieth century would be reconciling the advanced design of the Mercedes with the moderate price and low operating expenses of the Olds. This would be overwhelmingly an American achievement. Frank and Charles Duryea of Springfield, Massachusetts, had designed the first successful American gasoline automobile in 1893, then won the first American car race in 1895, and went on to make the first sale of an American-made gasoline car the next year. Thirty American manufacturers produced 2,000 motor vehicles in 1900, and some companies entered the business in the next decade. With its vast land area and a hinterland of scattered and isolated settlements, the United States had a far greater need for automotive transportation than the nations of Europe. Great demand was ensured, too, by a significantly higher per capita income and more equitable income distribution than European countries. Model T Given the American manufacturing tradition, it was also inevitable that cars would be produced in larger volume at lower prices than in Europe. The absence of tariff barriers between the states encouraged sales over a wide geographic area. Cheap raw materials and a chronic shortage of skilled labor early encouraged the mechanization of industrial processes in the United States. This in turn required the standardization of products and resulted in the volume production of such commodities as firearms, sewing machines, bicycles, and many other items. In 1908, the United States produced some 10% of the world total of 1,000,000 motor vehicles. The Ford Motor Company greatly outpaced its competitors in reconciling state-of-the-art design with moderate price. Its two-speed planetary transmission made it easy to drive, and features such as its detachable cylinder head made it easy to repair. Its high chassis was designed to clear the bumps in rural roads. Vanadium steel made the Model T a lighter and tougher car, and new methods of casting parts especially block casting of the engine helped keep the price down. Committed to large-volume production of the Model T, Ford innovated modern mass production techniques at his new Highland Park, Michigan, plant, which opened in 1918 although he did not introduce the moving assembly line until 1913. European automakers did not begin to use them until the 1920s. The heavier outlays of capital and larger volume of sales that this necessitated ended the era of easy entry and free-wheeling competition among many small producers in the American industry. Its popularity was bound to wane as the country urbanized and as rural regions got out of the mud with passage of the Federal Aid Road Act and the Federal Highway Act. Moreover, the Model T remained basically unchanged long after it was technologically obsolete. Model T owners began to trade up to larger, faster, smoother riding, more stylish cars. Car Sales Stall By replacement demand for new cars was exceeding demand from first-time owners and multiple-car purchasers combined. Given the incomes of the day, automakers could no longer count on an expanding market. Although a few expensive items, such as pianos and sewing machines, had been sold on time before 1900, it was installment sales of automobiles during the twenties that established the purchasing of expensive consumer goods on credit as a middle-class habit and a mainstay of the American economy. In both product and production technology, innovation was becoming incremental rather than dramatic. The basic differences that distinguish post-World War II models from the Model T were in place by the late 1920s—the self-starter, the closed all-steel body, the high-compression engine, hydraulic brakes, synchromesh transmission and low-pressure balloon tires. The remaining innovations—the automatic transmission and drop-frame construction—came in the 1930s. Moreover, with some exceptions, cars were made much the same way in the early 1930s as they had been in the 1920s. To meet the challenges of market saturation and technological stagnation, General Motors under the leadership of Alfred P. Sloan set out to make consumers dissatisfied enough to trade in and presumably up to a more expensive new model long before the useful life of their present cars had ended. General Motors became the archetype of a rational corporation run by a technostructure. As Sloanism replaced Fordism as the predominant market strategy in the industry, Ford lost the sales lead in the lucrative low-priced field to Chevrolet in 1931 and to GM

claimed 43 percent of the U. During World War II, in addition to turning out several million military vehicles, American automobile manufacturers made some seventy-five essential military items, most of them unrelated to the motor vehicle. Because the manufacture of vehicles for the civilian market ceased and tires and gasoline were severely rationed, motor vehicle travel fell dramatically during the war years. Models and options proliferated, and every year cars became longer and heavier, more powerful, more gadget-bedecked, more expensive to purchase and to operate, following the truism that large cars are more profitable to sell than small ones. Rise of Japanese Automakers Engineering in the postwar era was subordinated to the questionable aesthetics of nonfunctional styling at the expense of economy and safety. And quality deteriorated to the point that by the mids American-made cars were being delivered to retail buyers with an average of twenty-four defects a unit, many of them safety-related. The era of the annually restyled road cruiser ended with the imposition of federal standards of automotive safety , emission of pollutants and , and energy consumption ; with escalating gasoline prices following the oil shocks of and ; and especially with the mounting penetration of both the U. After peaking at a record Carmakers Retool In response, the American automobile industry in the s underwent a massive organizational restructuring and technological renaissance. Managerial revolutions and cutbacks in plant capacity and personnel at GM, Ford and Chrysler resulted in leaner, tougher firms with lower break-even points, enabling them to maintain profits with lower volumes in increasingly saturated, competitive markets. Manufacturing quality and programs of employee motivation and involvement were given high priority. Functional aerodynamic design replaced styling in Detroit studios, as the annual cosmetic change was abandoned. Cars became smaller, more fuel-efficient, less polluting and much safer. Product and production were being increasingly rationalized in a process of integrating computer-aided design, engineering and manufacturing. Legacy of the U. Auto Industry The automobile has been a key force for change in twentieth-century America. During the s the industry became the backbone of a new consumer goods-oriented society. By the mids it ranked first in value of product, and in it provided one out of every six jobs in the United States. In the s the automobile became the lifeblood of the petroleum industry, one of the chief customers of the steel industry, and the biggest consumer of many other industrial products. The technologies of these ancillary industries, particularly steel and petroleum, were revolutionized by its demands. The automobile stimulated participation in outdoor recreation and spurred the growth of tourism and tourism-related industries, such as service stations, roadside restaurants and motels. The construction of streets and highways, one of the largest items of government expenditure, peaked when the Interstate Highway Act of inaugurated the largest public works program in history. The automobile ended rural isolation and brought urban amenitiesâ€”most important, better medical care and schoolsâ€”to rural America while paradoxically the farm tractor made the traditional family farm obsolete. The modern city with its surrounding industrial and residential suburbs is a product of the automobile and trucking. The automobile changed the architecture of the typical American dwelling, altered the conception and composition of the urban neighborhood, and freed homemakers from the narrow confines of the home. No other historical force has so revolutionized the way Americans work, live, and play. Americans have become truly auto-dependent. But though automobile ownership is virtually universal, the motor vehicle no longer acts as a progressive force for change. New forcesâ€”the electronic media, the laser, the computer, and the robot probably foremost among themâ€”are charting the future. A period of American history that can appropriately be called the Automobile Age is melding into a new Age of Electronics. Eric Foner and John A.

Chapter 7 : 4 Ways to Check Vehicle History for Free - wikiHow

The United States embraced the motor car in a big way, and by the mid nineteen sixties, no one walked anywhere anymore. The country that gave us the shopping mall also gave us the parking lot, and.

By the end of the year, Olds had built some of them. Its tiller steering and buggy-like body were familiar to the horse-trained public. Down the road of life we fly, Automo-bubbling, you and I. The defining characteristic of the four-cylinder Model 10 and of every Buick since was its overhead-valve cylinder head, a. Production ended when Buick realized it could build on its reputation and its efficient valve-in-head engine to sell more expensive cars at higher profits. Farms were no longer dramatically isolated from one another. Street lights, road signs and a whole new array of roadside businesses sprouted, including the now-ubiquitous gas station. Ford also revolutionized industry at large with assembly-line production, which helped speed manufacturing and push prices down. Such prices helped people who never aspired to driving think that they, too, could afford a newfangled horseless buggy and the freedom it provided. He gave the engine 20 horsepower, which propelled the car to top speeds of 40 to 45 miles per hour. The Model T did have its quirks. For one, the gallon fuel tank was positioned under the front seat and fuel was gravity-fed to the engine. Because of that and the reality that reverse gear offered more power than the forward gears, owners could often be seen driving up a steep hill backward. Vast storage areas were filled with bodies being painted, costing the company both time and money. Black cured much more quickly and it became the standard and only color offered from to Worker turnover killed productivity; sometimes workers just walked away from their stations, bringing the entire line to a halt. That solved the turnover problem, letting the assembly line run efficiently. Dodge Model 30, With a horsepower, cubic-inch, four-cylinder engine and a 3-speed sliding gear transmission, it came fully equipped from the factory with a folding top, electric lighting, leather upholstery, electric starter, windshield and speedometer. Originally constructed in the traditional manner, with steel panels over a wood frame, the Model 30 in became the first-ever to offer an all-steel automobile body. The brothers, in a belt-and-suspenders move typical of their conservative nature, added rivets to the welding for reinforcement. Ford Phaeton Type Model A. So in the company set out to create a successor. The first blueprints date to January Model T production ended May 26, The first Model A was assembled October 21 and the car was introduced publicly on December 2, Just over 3, were built in calendar year For an economy car, the Model A boasted several rarely seen innovations, including four-wheel hydraulic-lever shock absorbers, self-adjusting four-wheel mechanical brakes and a laminated safety-glass windshield. On February 4, , Ford built its one millionth Model A; the two millionth followed on July 29th, barely six months later. But by the Model A, too, had been surpassed by a horde of voracious competitors. It set up a seesaw battle for volume between Ford and Chevrolet that persisted through the next decades. He rejected an inline six as being a copycat, seeking something distinctly different to perpetuate the image of Ford as the automobile innovator. A more powerful V-8 for a low-priced car offered that innovation. The first prototype was completed in May The Ford V-8 would go on to upend the American automobile industry. Its cubic-inch V-8 engine produced 65 horsepower, over 50 percent more than Model A. It had a single-piece cylinder block and crankcase, a marvel of foundry technology at the time. The V-8 was short and rigid, and it dropped right into the space designed for the Model B four-cylinder engine already planned for production in That meant no expensive factory re-tooling. The Ford V-8 did have problems, like cooling issues that were never adequately solved. But its light weight, reliability and substantial power laid the base for American automobile engine development for years to come.

Chapter 8 : History of the automobile - Wikipedia

Cars give people the freedom to travel where they like and when they like. The cars of today are the result of more than years of development and improvement. They still work on the same principles as the earliest cars, but they take us from place to place more quickly and more safely than ever before, and they use much less fuel.

History of the Electric Car Scottish inventor Robert Anderson invents the first crude electric carriage powered by non-rechargeable primary cells. Thomas Edison and an electric car. Courtesy of the Smithsonian A handful of different makes and models of electric cars are exhibited in Chicago. The Pope Manufacturing Company of Connecticut becomes the first large-scale American electric automobile manufacturer. Though his research yields some improvements to the alkaline battery, he ultimately abandons his quest a decade later. Of the 4, cars produced in the United States 28 percent are powered by electricity, and electric autos represent about one-third of all cars found on the roads of New York City, Boston, and Chicago. A Gallup poll indicates that 33 million Americans are interested in electric vehicles. The Environmental Protection Association later kills the program in The CitiCar has a top speed of over 30 mph and a reliable warm-weather range of 40 miles. By the company is the sixth largest automaker in the U. The law is intended to spur the development of new technologies including improved batteries, motors, and other hybrid-electric components. The law is repeatedly weakened over the next decade to reduce the number of pure ZEVs it requires. Nearly 18, units are sold during the first production year. The Bush Administration joins that suit. Crushed EV1 electric cars G. The vigil ends twenty-eight days later when G. The first Renault electric cars are scheduled to hit the streets of Tel Aviv and other cities in Better Place announces a host of partnerships to support electric vehicle projects in Denmark, Canada, Japan, Australia and the U. American automakers begin to shift their production lines away from SUVs and other large vehicles toward smaller, more fuel-efficient cars. Though they pack less energy than more conventional lithium ion batteries, BYD opts to power the F3DM with a more stable lithium iron phosphate battery. The economic downturn is global in scope and will continue to exert financial pressures on the already battered U. April Prime Minister Gordon Brown announces that the British government will promote the use of electric vehicles in the U. Chrysler files for Chapter 11 bankruptcy. As part of its restructuring, Chrysler forms a partnership with the Italian car maker Fiat. May President Obama announces a new gas-mileage policy that will require automakers to meet a minimum fuel-efficiency standard of General Motors, the leading producer of automobiles for most of the 20th Century, files for bankruptcy protection. The federal government will hold a 61 percent stake in the reborn General Motors. Similar to the Better Place initiative in Israel, Nissan plans to work with the Japanese government and private companies to set up charging station networks across several countries. Late Though a few electric LEAF, Chevrolet Volt, and Mitsubishi i MiEV are currently available on the market, several new models including the Nissan LEAF, Chevrolet Volt, and Mitsubishi i MiEV are scheduled to hit the streets in the near future. Toyota, creator of the popular Prius hybrid, has thus far declined to deliver a fully electric car. Despite promising signs, the electric car will need to navigate a bumpy road before it can become a viable option for many drivers. Challenges to mass adoption include high sticker prices, limited battery life and travel range, and building charging stations and other infrastructure to support electric vehicles.

Chapter 9 : A Brief History Of The Car

For example, Ferdinand Porsche, founder of the sports car company by the same name, developed an electric car called the P1 in Around the same time, he created the world's first hybrid electric car -- a vehicle that is powered by electricity and a gas engine.

Antique car The American George B. Selden filed for a patent on 8 May His application included not only the engine but its use in a 4-wheeled car. Selden filed a series of amendments to his application which stretched out the legal process, resulting in a delay of 16 years before the patent was granted on 5 November Selden licensed his patent to most major American automakers, collecting a fee on every car they produced. The first company formed exclusively to build automobiles was Panhard et Levassor in France, which also introduced the first four-cylinder engine. By the start of the 20th century, the automobile industry was beginning to take off in Western Europe, especially in France, where 30, were produced in , representing The Autocar Company , founded in , established a number of innovations still in use [26] and remains the oldest operating motor vehicle manufacturer in the United States. However, it was Ransom E. Its production line was running in They continued to build horse-drawn vehicles until Drum brakes were introduced by Renault in Dual- and even quad-engine cars were designed, and engine displacement ranged to more than a dozen litres. Innovation was not limited to the vehicles themselves. Increasing numbers of cars propelled the growth of the petroleum industry , [36] as well as the development of technology to produce gasoline replacing kerosene and coal oil and of improvements in heat-tolerant mineral oil lubricants replacing vegetable and animal oils. Music would be made about cars, such as "In My Merry Oldsmobile" a tradition that continues while, in , William Jennings Bryan would be the first presidential candidate to campaign in a car a donated Mueller , in Decatur, Illinois. Johansen at Copenhagen, in Denmark, which only built one car, ca. Any woman can drive an electric automobile, any man can drive a steam, but neither man nor woman can drive a gasoline; it follows its own odorous will, and goes or goes not as it feels disposed. Breakdowns were frequent, fuel was difficult to obtain, roads suitable for traveling were scarce, and rapid innovation meant that a year-old car was nearly worthless. Brass or Edwardian era[edit] A Stanley Steamer racecar in In , a similar Stanley Rocket set the world land speed record at Antique car This period lasted from roughly through to and the beginning of World War I. It is generally referred to as the Edwardian era , but in the United States is often known as the Brass era from the widespread use of brass in vehicles during this time. Within the 15 years that make up this era, the various experimental designs and alternate power systems would be marginalised. This system specified front-engined , rear-wheel drive internal combustion engined cars with a sliding gear transmission. Traditional coach -style vehicles were rapidly abandoned, and buckboard runabouts lost favour with the introduction of tonneaus and other less-expensive touring bodies. By , steam car development had advanced, and they were among the fastest road vehicles in that period. Transmissions and throttle controls were widely adopted, allowing a variety of cruising speeds, though vehicles generally still had discrete speed settings, rather than the infinitely variable system familiar in cars of later eras. Safety glass also made its debut, patented by John Wood in England in Also in , the first South American automobile was built in Peru, the Grieve. Also in April , the aforementioned Komanosuke Uchiyama produced the Takuri, the first entirely Japanese-made gasoline engine car. It used a planetary transmission , and had a pedal-based control system. Ford T was proclaimed as the most influential car of the 20th century in the international Car of the Century awards. Similar models were the Types 15, 17, 22, and Kaishinsha was the first automobile manufacturing business in Japan.