

Automotive Facts

Automobiles in History

In the annals of history, the automobile flashed onto the scene like a meteor, changing the entire economy and the national way-of-life. No one was really prepared for it. Generations of horse-drawn road transportation had created a complex system of industries on which the automobile had a damaging effect; everybody from horse doctors and harness-makers to blacksmiths. The continuing changes and the reasons for them are obvious to us, but probably were not so obvious to automotive pioneers. It was, after all, a learn-as-you-go process with no precedents. For every inventor who made a fortune, hundreds had their dreams crumble. Automobiles have ended the isolation of rural communities and set an example of industrial efficiency for the world to copy. It has also spoiled the cities and small towns as neighborhoods are obliterated by highways smashing through; it has polluted the environment, and caused shortages in natural resources. Yet the car itself is still the object of endless fascination.

Automobiles in History and Politics

In 1905, President Theodore Roosevelt said he had ridden in a car only twice in his life and that was quite enough. His chauffeur had been stopped by a policeman on his second ride, going at the outrageous speed of ten mile per hour. Roosevelt declared he would never ride in a car again. He later became the first President to own a car and the first to drive one. The nation's first speeder, by the way, was arrested in 1899 by a New York policeman riding a bicycle. The speeder was whizzing along at an amazing twelve miles per hour!

In 1907, five years before becoming President of the United States, Woodrow Wilson warned the American citizens that the motorcar would "spread socialist feelings in this country." He, like Roosevelt, was forced to eat his words and think twice before he condemned anything again. In 1919, he bought a Model T Ford.

In 1908, a U.S. Army study predicted that the automobile was unsuited for war. During World War I, however, the Allies commandeered all the taxis in Paris to rush their troops to the front lines, halting the German Army at the Marne. Meanwhile, in spite of their predictions, the Army was buying some cars for the brass, refusing to pay the state of New York a \$2.00 license fee on the grounds that the U.S. Government was immune from taxation.

Hiram Johnson was the first political candidate to put his campaign on motorized wheels in 1910. He drove his way right into the governor's mansion in California by covering the state in a car.

Nearly every member of the Russian royal family had a Rolls-Royce. Czar Nicholas II had a matched pair of Rolls-Royce Silver Ghosts. Prince Feliks Yussupov, the Czar's nephew, owned a Silver Ghost which became part of history.

Grigori Yefimovich Novykh, known as "Rasputin," arrived in St. Petersburg from Siberia about 1906. Rasputin means "debauched," an appropriate name for one who believes that salvation can only be gained by sinning. In spite of his amorality, Rasputin claimed to be a holy man with the power to heal. By superstition of the

times and manipulation, he was able to accomplish improved health for several of the afflicted who came to him for help. Czarina Alexandra Feodorovna, whose son had hemophilia, in desperation to save the royal heir, sent for Rasputin after the court physicians had failed to help him. Rasputin held some emotional and mystic sessions with the boy and convinced Alexandra that he had cured him. Alexandra then turned to him more and more for advice concerning personal and even public matters. Using his hold over the Czarina, he gained influence over Czar Nicholas' decisions on affairs of state.

Prince Yussupov was alarmed by Rasputin's meddling and conspired with four government officials who felt the same to do away with Rasputin. On December 29, 1916, these conspirators lured him to Moika Palace and fed him wine and cakes laced with cyanide. The poison either had no effect or took longer than the party could stand, so Yussupov shot him several times to shorten his suffering. They carried the body of Rasputin, bleeding but still alive, to Yussupov's Rolls-Royce, first wrapping him so that he would not stain the upholstery. Driving to the banks of the frozen Neva River, they dragged him from the car and dropped him through a hole in the ice. Rasputin went out in grand style: sitting on the back seat of a Rolls-Royce, which was driven by a prince of the realm.

A year and a half later, the entire royal family was dead, murdered during the Communist Revolution. Lenin, the father of Communism, owned the very symbol of Capitalism, a Rolls-Royce. The fate of Yussupov's Rolls-Royce is unknown, but Lenin's is in the Moscow museum. That makes two Rolls-Royce automobiles in Russia at the present time, since the British Ambassador drives one. If you are interested in owning one of the grandest of the grand, the makers of Rolls have an elongated Silver Spur limousine on sale for only \$185,000.

Another automobile which played a major part in history is the Mercedes, which really doesn't seem to be a good token for political leaders.

Germany's Kaiser Wilhelm had a chauffeur-driven Mercedes with an imperial eagle on the hood; World War I took away not only his handsome automobile, but also his empire. One war later, Adolph Hitler rode to defeat in a Mercedes limousine. Hitler had been so proud of his country's automobile that in 1939, when Nazi Germany and the Soviet Union signed their pact of non aggression, which neither nation honored, he gave a supercharged sports Mercedes roadster with a rumble seat to his good friend, Joseph Stalin. After Stalin died, his son sold the Mercedes to a Swede who later sold it to a man in Arizona. The Arizonan later offered it for the sale price of \$775,000 but said he could be talked down to a measly \$700,000.

Shortly after Hitler killed himself (and then swam to South America), the chancellor of the new German Federal Republic, Mercedes-borne Konrad Adenauer, watched his country split in half. Emperor Hirohito of Japan also owned a red and black Mercedes before he came in last during WWII.

The Mercedes is especially popular among the political elite in Africa, which the Swahili call "wabenzi," or men of "Mercedes-Benz." The Central African Republic's Emperor, Jean-Bedel Bokassa, was one such wabenzi, who had his country and his entire Mercedes fleet taken in a 1979 coup. Six years later, the wabenzi of Nigeria, President Alhaji Shihu Shagari, lost his office and impressive car in the same way.

A group of middle-aged women in Togo fared much better than the men. Some decades ago, these ladies made night visits into Ghana to smuggle that country's fine cloth into Togo. Subsequently, they gained control over Togo's entire textile market, branching out into legal commercial enterprises and becoming millionaires many times over. They drive around Togo in their Mercedes limousines to check up on real estate holdings, restaurants, grocery stores, and various other ventures. When the Togolese President discovered that he did not have enough VIP vehicles to receive his visitors while hosting a conference of the African heads of state, he sent out a call for help to the "Mercedes Ladies." In a few hours, a whole procession of gleaming Mercedes automobiles drove up to assist the President.

Clyde Champion Barrow, of Bonnie and Clyde fame, wrote a letter to Henry Ford in 1934, one month before Clyde and the cigar-smoking, gun-toting Bonnie were killed in a shoot-out with the police. Clyde stopped running from the federal authorities long enough to write what a "dandy car" Ford made. He wrote that "...For sustained speed and freedom from trouble the Ford has got every other car skinned and even if my business hasn't been strictly legal it don't hurt anything to tell you what a fine car you got..." In 1947, the very car that Clyde had so much affection for was sold at auction. It had been wrecked during the shoot-out and was bullet-ridden. Even so, it brought \$175,000.

When Gerald Ford became Vice President in 1973, he stated, "I am a Ford, not a Lincoln." Once he became President, he found himself to be a Ford in a Lincoln, since the Lincoln was the official automobile for the President, a tradition started by Calvin Coolidge in 1924. This tradition was upheld until Ronald Reagan expressed a fondness for the Cadillac.

Automobiles, like wine, seem to become more costly with maturity and age. An Orlando auction in 1981 brought \$350,000 for a 1936 Packard that had been purchased for about \$2,000 when new. A 1936 Mercedes brought \$421,000 in Los Angeles in 1979. One auto lover in Kansas has given 30,000 hours of labor to fine-tune and plate his 1920 Pierce Arrow with silver and gold. This automobile is insured with Lloyd's of London for \$1,000,000!

Automobiles in Art and Literature

Cars have frequently played a major role in literature. They are even used at times to comment on the state of humanity. Carl Sandburg wrote "Portrait of A Motorcar" in 1918 and almost twenty years later, made the automobile the center of his long prose poem, "The People, Yes." Joyce Carol Oates, in 1979, wrote a provocative poem entitled "F---"; for Ford, of course.

In 1919, Sinclair Lewis wrote whimsically of his adventures in a Model T. Six years later, F. Scott Fitzgerald wrote his masterpiece, "The Great Gatsby," portraying the cynicism of post-World War I by the use of Gatsby's cream-colored Rolls-Royce. In 1962, William Faulkner wrote humorously about human frailties against the backdrop of an early Winton Flyer automobile in his literary classic, "The Reivers." Some poets and novelists were drawn to the car culture, but others were depressed by it. Either way, the automobile was the hub of human commentary for a long list of writers.

Even more than writers, composers of popular music are attracted to cars. They jumped in almost as soon as the first car drove past and have never gotten off. Many

of the songs are sexually oriented. Titles include "In My Merry Oldsmobile," "On The Back Seat of A Henry Ford," "Tumble in A Rumble Seat," "Keep Away from The Fellow Who Owns an Automobile," up to the contemporary songs such as "Maybelline," "Mustang Sally," "Little Deuce Coupe," "Pull up to The Bumper," and "Little Red Corvette." Trucking songs, such as "King of The Road," "On the Road Again," and others too numerous to mention are immensely popular.

The Los Angeles Music Center and Museum of Contemporary Art commissioned several playwrights to create original ten-minute scripts to be acted out in automobiles. The film industry has relied heavily on the automobile, ranging from the humorous "The Long, Long Trailer" and "It's a Mad, Mad, Mad, Mad World" to "Bonnie and Clyde" and hundreds of chase scenes. Television made the automobile the very star of the show in "My Mother, The Car" and "The Knight Rider," in which "Kit" is smarter than any of the rest of the cast.

Artists followed Toulouse-Lautrec's lead from his 1896 lithograph, "The Motorist," to take up brushes and portray the essence of the automobile. Some used their brushes in cartoon fashion to show it as a toy of the idle rich. Some saw it as a symbol of mankind's dynamism and vitality. Andy Warhol, who saw art in a Campbell soup can, painted a series devoted to gruesome car wrecks. Other artists see the automobile as a graceful, flowing form of man-made beauty, an art in itself.

Those Women Drivers!

The first "chauffeuse," or woman driver to appear in public was Miss Daisy Post, a niece of Mrs. Frederick Vanderbilt; she was soon joined by Mrs. Herman Oelrichs and Mrs. William Vanderbilt.

A Mrs. Stuyvesant Fish, with Miss Greta Pomeroy as her passenger, decided to drive the "machine" around the grounds. She meant to stay close to the drives and sidewalks, but instead, ran into a stone wall. The wall fell down and the car proceeded, tearing out a clump of choice shrubbery and finally smashing into the steps of the house. At this point, the car finally stopped and the whole side of the automobile gave way and fell off. Mrs. Fish may have been the originator of the male expression, "woman driver." Of course, many male drivers fared no better than Mrs. Fish on their first try - and many did worse. There were many instances recorded of panic-stricken men losing control of their vehicles and shouting, "Whoa! Whoa!"

Miss Anne Rainsford French of Washington, D.C., whose father was a noted physician in the capital city, was awarded her "Steam Engineeer's License, Locomobile Class," on March 22, 1900. She was one of the earliest licensed women drivers in the United States. Mrs. John Howell Phillips of Chicago is said to have been licensed two months prior to Miss French, however. In the same year, 13-year-old Jeanette Lindstrom received license No. 322 and it was claimed that she had already been driving for two years.

Mrs. Mary Landon was the entire office staff of the Haynes-Apperson Automobile Company. In 1899, she read the instruction sheet put out with each of the vehicles and proceeded to drive one of the firm's automobiles across town to the factory. Upon her arrival there, Elmer Apperson exclaimed, "Well, I'll be damned!"

Mrs. Newton J. Cuneo of New York was the only woman driver in the first Glidden Tour in 1905. She was driving smoothly along when another car stalled in front of her on a narrow bridge. Unable to apply the brakes in time, she rear-ended the other car and tipped her own into the creek.

In 1909, Mrs. Alice Ramsey and three women companions (Nettie Powell, Margaret Atwood, and Miss Hermine Johns) drove a Maxwell touring car from New York City to San Francisco in fifty-three days. They proved themselves capable of keeping their car in operation, changing tires and finding their way on unmarked roads. Their biggest problem was that each had only one suitcase for the entire journey. The Maxwell Company hired an advance man, John D. Murphy, to precede the ladies and make necessary hotel accommodations and check on the gasoline supply for their extra-large twenty-gallon tank.

The ladies added a new dimension to motoring. Dusters, scarves, veils, hats, and gauntlet-style gloves were a must of the female driver. Before windshield wipers became standard equipment, goggles had to be part of the attire. Some wore large face-covering bonnets, like bee-keepers hats, with a glass window to see through, or they carried tiny hand-windshields, which they held in front of their faces to keep dust and bugs out of their eyes.

Queen Victoria, of England, had died in 1901, and gradually the symbols of her moralistic influence began to fade. Equal rights became a reality, and the automobile played an influencing role in the change. The status of the weaker sex was improved, and the slogan of the Pullman auto - made in New York, Pennsylvania - had a special meaning for women: "Tailored for Her Majesty, the American Woman."

Wake! For the Car that scatters into flights
The Hens before it in a flapping Fright,
Drives straight up to your Door, and bids you
Come Out for a Morning Hour of Sheer
Delight.

We are no other than a Moving Row Of Automobile Cranks that come and go. And what with Goggles and Talc-windowed Veils, In Motoring Get-up, we're a Holy Show!
Carolyn Wells, 1906.

How Cars Are Assembled

Ford's revolutionary concept of the assembly line to make cars included a rope which pulled a line of chassis along a track, at which stood fifty workers, each fixing their own allotted part to each chassis as it moved by. Assembly time for a chassis dropped from twelve to one and a half hours. In less than ten years, the price of a Model T dropped from \$850 to \$250. Ford sold 1.8 million Model T cars. In 1951, Ford led the way in using automatic equipment to produce engine blocks.

The urge to save labor has continued to inspire new developments, with robots replacing workers, cutting out tedious tasks and guaranteeing greater accuracy. On the Fiat Uno, 30 of the 2700 welds are done by hand. Only specialized crafts, such as electrical wiring, now remain in human hands.

In a typical car assembly in the 1980s, the first stage was sheet steel arriving at the press shop. In areas as large as three football stadiums, robot cranes supplied rolled

sheets of steel to giant stamping machines, which cut the pieces of metal to make up the car body. Then robots built the underbody or floorpan, making numerous welds and creating a complex shape with spaces for wheel arches, boot wells and spare wheels.

In the next stage, large jigs positioned the body sides and roof to be welded into place automatically. In the meantime, the doors had been made on nearby assembly lines in a process that involved several different pressings to create an outer skin clinched over an inner frame. Finally, lasers checked every car body for the smallest flaw, distortion or irregularity.

The car, now largely assembled, was cleaned in a degreasing tank, rinsed and coated with phosphate to make it more receptive to the paint. After further rinses, base primer coat was applied, in several layers. These primer coats were sprayed on electrostatically, using an electric field to attract the paint. The last layers, usually three, were glossy acrylic paint. The paintwork on most mass-produced cars is 0.1mm thick; although on a Rolls-Royce, there are 22 layers of paint, giving a thickness of 0.2mm. Special wax was then applied to protect against water, snow, grit and salt. This was injected into hollow sections such as pillars and sills.

The next stage, the trim, fitted out the interior. The car was wired with its electrical system. Robots fitted underfelt, carpets, seats and other fittings. Windscreen and some other windows were often glued to the car to make a better fit and reduce wind resistance and noise. Robots applied the glue to the edge of the glass and then put it in place on the car with sucker grips.

Finally, the car was hoisted up, and a jacking system brought the engine, complete with clutch and gearbox, into position. The fuel tank was mounted at the rear end of the car. Next came suspension, steering, radiator and battery, and then the wheels and tires. When water, antifreeze, oil and gasoline were added, the car was ready to run. Inspectors examined it at the gate before its final road tests. When the car was given its final checks, it was ready for the dealer.

Facts about Rubbish

Every year Americans throw away 250 million tons of rubbish. New York alone generates almost 10 million tons a year. It has been estimated that America's garbage could provide as much energy as 100 million tons of coal. Unfortunately, most of it is buried and never used. Recycling garbage can produce electricity, saving millions of tons of coal. Rubbish can also be burned by factories instead of coal or oil, but it must be treated first.

For our purposes, rubbish dumped in the ground could be used as a source of fuel. As garbage begins to rot, it produces methane gas, which is the same as the natural gas found in pockets under the earth's crust. Each ton of refuse can produce up to 14,000 cubic feet (or 400 cubic meters) of methane. Left alone, the gas will find its way to the surface and escape, sometimes causing explosions. But it can be tapped very cheaply and used to generate heat or electricity. Some plants use the gas on site to generate electricity by burning it in simple gas engines. This allows all the gas to be used, rather than trying to match output to the fluctuating demands of a factory. In the future, gas production in rubbish may be used to fuel our automobiles as an oil substitute.

We should also be interested in metal waste, which could be sorted out and reused after processing for car parts.

A Few Facts about Oil

When oil was struck in the Forties Field under the North Sea in 1969, it led to the discovery of at least 350 million tons of oil. However, by the year 2020, the world's known oil reserves are due to run out. By then, new oil fields will need to be found, probably in more and more inaccessible places. Prospectors looking for oil look for sedimentary basins which could be oil-bearing, magnetic surveys and gravity surveys are often used. All rocks are magnetic, but the magnetism varies slightly from one rock to another, giving geologists clues to the structure and type of rocks that lie underground. Other clues include the density of the rock.

When the production wells have been drilled and lined with casing, a perforating gun is lowered down them to drive explosive charges through the casing and cement and into the rock beyond to allow the oil to get into the wells. As oil is extracted, pressure may be maintained by injecting water or gas into the reservoir rock to displace the oil towards the production wells.

Even with the help of modern techniques, however, such as electrical and mechanical pumps, it is seldom possible to extract more than 30% to 50% of the oil in a field. Perhaps a means will be found to get all the oil out of a "dig." If so, millions more gallons would be available out of the wells which have previously been drained "dry."

Lighting City Streets

Every day, at dusk and dawn, millions of street lights are turned on and off throughout the world. Most lights are controlled by time switches, which operate a group of lights in nearby streets. The earliest time switches worked by clockwork and had to be wound up and adjusted every week.

Many modern time switches now have an electric clock with a rotating dial, containing levers and tappets, which turn the lights on and off at the chosen times. Since the sun rises and sets at different times during the year, street lights must also go on and off at different times, so these dials also alter the switching times according to the season of the year. This is arranged in the time switch by a mechanical device which adjusts the "On" and "Off" tappets month by month to follow the changes in the hours of daylight.

Recently, engineers have developed a photoelectric control unit called a "pecu," which operates a switch in the electrical supply to the lights. At dawn, light falling on a photocell causes electrons to flow from one atom to another, conducting electricity to the switch and turning it off. When darkness falls, the electrons become immobile, the current stops, and the lights are turned on. The exact time that the lights go on and off will also depend upon weather conditions.

Seat Belt Protection

A driver or passenger travelling in a car is moving at the same speed as the car. If the car suddenly stops, the body of the rider inside will keep moving forward at the

same speed. This demonstrates inertia - the tendency of a moving object to keep moving, or of a stationary object to remain at rest. An inertia-reel seat belt works on the same principle. Its mechanism includes a pendulum, which hangs vertically under ordinary driving conditions. If the car should suddenly stop, however, it swings forward, and a locking lever resting on the pendulum is released. The lever engages a toothed ratchet that locks the shaft around which the belt is wound. The locked seat belt then prevents the body from being flung forward.

When the seat belt is fastened, it winds out from the reel against slight tension from a spring. This keeps it taut during normal traveling, but allows enough free movement for a driver to reach forward as necessary. If the driver tugs on the belt abruptly while winding it out, the locking mechanism will engage and stop the action of the spring. Slackening the belt releases the spring and the locking lever.

Tires on Racing Cars

Car tires are more than just cushions for the wheels. They also give the car a good grip on slippery roads and keep it from sliding about when braking and cornering. The tread patterns running all around the tire have thin cuts in the rubber to sponge up surface water, and zigzag channels to pump the water out behind as the car rolls forward. On a wet road, a tire has to move more than one gallon (5 liters) of water a second to give needed grip.

On perfectly dry roads, the treads are not needed. A smooth tire gives the greatest possible area of contact with the road, but if smooth tires are used on wet roads, the film of water builds up in front of the tires and underneath them and actually lifts them off the road surface, a condition known as "hydroplaning." In this situation, the driver will lose control of the car.

Most cars have to function in all types of weather, so their tires must have tread, but racing cars make very few outings a year. If the track is dry, they run on smooth tires, called "slicks," to get the best grip on the roads. The extra wide tires and wheels give more grip than the average car, but in wet weather, the racer must change to treaded tires.

Breath Tests

When someone blows into a breath-test bag, any alcohol in his breath is turned into acetic acid (vinegar), changing the color of the crystals in the blowing tube. The more crystals that change color, the more alcohol is in the body. The first breath-alcohol test was developed by an American doctor, Rolla N. Harger, who called it a "drunkometer."

The breath-alcohol tests used by the police today, however, are usually electronic, and much more accurate than the inflatable plastic bag type. They use the alcohol blown in through the tube as fuel to produce electric current. The more alcohol the breath contains, the stronger the current. If it lights up a green light, the driver is below the legal limit and has passed the test. An amber light means the alcohol level is near the limit, a red light is above the limit, and in both cases the driver has failed the breath test and needs further testing. These tests are used to judge a driver's ability to drive. A high intake of alcohol dulls the nervous system and slows up coordination.

The best advice concerning these are the familiar "If you drink, don't drive; if you drive, don't drink!"

Did You Know?

By 1898, American motorists had formed about fifty clubs across the country. In 1902, the biggest and most enduring of these clubs was founded - the American Automobile Association.

In 1900, the nation's total hard-road surface was under 40,000 miles. The first mile of concrete roadway was laid in 1908, at which time Kansas had 273 miles of macadam and gravel roads; Delaware had 66; Nebraska, 23; and Oklahoma had none.

In 1906, the Stanley Steamer clocked an unheard of speed of 127.6 miles an hour on the sands of Ormond Beach, Florida.

On June 27, 1980, a time when the great international question of the day was whether or not fifty-three American hostages held in Iran by terrorists would get out alive, the top U.S. official in the hostages had plans to get out. Maryland's Motor Vehicle Bureau received a letter from Tehran, asking that the official's driver's license be renewed before it expired. He perhaps dreamed of driving freely down a New England highway when he was released and didn't want expiration of his driver's license to come between him and his dream.

A New Jersey couple tried to swap their fourteen-month-old son for a '77 Corvette. When the police arrived, the couple were just attaching their license plates on the car for which they had traded their son. The infant was found crawling happily on the floor of the showroom.

According to the United States Census Bureau, we spent \$856 million to wash our cars in 1982. This was not to smooth dents in fenders or even to touch up paint jobs; it was just to run through the neighborhood car wash. Now something new has come on the scene for a soiled car: it is called "detailing." These shops started in California and are spreading across the country. They wash the car, massage it with lotions and creams, blow-dry it, and wipe it gently with chamois for a mere \$145 for the eight-hour beauty treatment.

Mrs. Selma Ghelberg applied for and received a personalized license plate in Mount Vernon, New York. Her son had established "No Name" as his CB "handle," and Mrs. Ghelberg therefore asked for a NO NAME tag. Mrs. Ghelberg immediately began to receive dunning notices for unpaid parking and speeding tickets. She had always obeyed the law and had never received a ticket, so she took the notices in and explained her situation at the police station. The police were very skeptical, but since Mrs. Ghelberg was so adamant about her innocence, they agreed to investigate.

The investigation revealed that when a policeman wrote a ticket with the offender's name entered illegibly, the clerk punched "No Name" into the computer. The computer in Albany automatically sent a response that NO NAME was registered to Mrs. Ghelberg, and the police issued her another ticket. The irony of this dilemma

was that our poor Mrs. Ghelberg worked for the New York State Department of Motor Vehicles!