

The Impact of a Technology on Society: From 1865 - 1960

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Professors
Dr. Michael Hoffman and
Walter Puchalski
Bucks County Community College

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Prepared by

Robert Lacivita

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Throughout time, technological and scientific advancements have always had an impact on society. The first simple inventions of the wheel, lever, pulley and screw, shaped man and society. Other discoveries helped people move out of caves into stand-alone structures creating the first distinctive cultures. Although the fields of mechanics, chemistry, astronomy, metallurgy, and hydraulics were developed long before the laws governing their functions were understood, early scientific and technological breakthroughs of tool making, boatbuilding, and dam building helped form the societies and cultures of modern man (Technology, Encarta). This research paper will focus on the automobile as the one technology that had the greatest influence on our economy, society and culture from 1865 to 1960. Of course the automobile wasn't the only innovation that changed the socioeconomic course of the United States.

From the middle of the second millennium, through the Industrial Revolution, to the end of the 19th century, other technological advancements influence society as never before. Guttenberg's printing press, Leonardo da Vinci's science and artworks predicting future of scientific advancements, John Harrison's mechanical clock which allowed precise timing of controlled observation – the scientific method (Harrison, Encarta), the steam engine powering the Industrial Revolution (Bellis, Steam) and Joseph-Marie Jacquard's invention of the automatic loom; a machine that replaced human labor.

Transportation after the Civil War was by either foot, horse (and horse drawn trolley), or train (Szudarek 133). Manufacturers built their factories in urban centers near railways and shipping centers to make delivering their finished goods easier. This

resulted in people leaving the farms and moving into the cities to find higher paying jobs in the factories. In addition, the time period after the U.S. Civil War to 1960, sometimes referred to as the Second Industrial Revolution, saw an unprecedented wave of technical and scientific advancements that carried industry and society to new levels (Second Industrial Revolution, Encarta). Inventions such as:

- The telephone changed the way we communicate forever.
- The electric light bulb profoundly changed human existence by illuminating the night.¹
- Radio helped bring live concerts, plus the world of entertainment and news into our living rooms.
- Television influenced everything from politics to consumption patterns.
- Medical miracles such as antibiotics, plus the scourge of polio was eradicated.
- The transistor redefined communication and the electronic world forever.²

These new technologies changed the economy and became ingrained into the very fabric of our culture that life without them was incomprehensible.

Economic miracles during the decades after the Civil War increased the wealth in America enormously. Dr. Eric Mayer illustrates that the standard of living rose sharply, and American workers of the 1920s enjoyed greater comforts than their counterparts in other industrial nations because of the economic growth generated by tremendous automobile sales after World War I (Mayer).

Three types of engines powered the first automobiles: steam, gasoline-fired internal combustion, and electric. The electric car was the most popular, but

¹ Gormley

² Evans 5, 6

batteries did not exist that would allow a car to have much speed or travel long distances and steam powered engines were costly to build and maintain compared to the gas powered engines. As a result, early American automobile pioneers Ransom E. Olds (*the* REO Speedwagon) and Henry Ford (*the* Model T) rejected steam and electrical powered automobiles, refined the assembly line process and built reliable gasoline internal combustion engines (Szudarek 14, 26). A historian has said that Henry Ford freed the common people from the limitations of their geography (Automotive Industry).

At the beginning of the century, the automobile was a toy for the rich. However, Henry Ford did two important things to make his cars accessible to the general population. First, he lowered the cost of production by improving and using the scientific method of the assembly line and a system of standardized parts (Szudarek 247). Second, he paid his workers enough to purchase the cars they were manufacturing (Brancheau, et al). According to Professor Gerhard Rempel, "By [the] mid-twentieth century, middle-class and working-class people owned automobiles in Europe as well as in the United States, and the motorcar began to transform social patterns" (Rempel).

In the 1920s, the automobile was the most important catalyst for social change. It gave Americans a new found freedom to leave their home, neighborhood, town or state whenever they wanted. For the younger generation, a car provided space free of chaperones. The convenience of owning an automobile freed people from having to live near rail, bus and trolley lines or where they worked. As long as roads were available, people could live almost anywhere. Many states started taxing

motor fuel to help build and maintain highways. The new tradition of the “Sunday drive”, where city-dwellers would drive out to the countryside to escape the confines of their everyday surroundings began. Consequently, traveling greater distances created a need for new services. The new businesses of gas stations, repair shops, roadside restaurants and motels (a blend of the words motor and hotel) were pioneered (Brancheau, et al.).

Manufacturers began to make gasoline-fueled tractors and trucks that displaced horses. Using this new equipment, in combination with other scientific innovations such as chemical fertilizer and hybrid seeds, farmers could easily grow and economically ship greater amounts of goods, but farmers’ expenses and debts also increased. These changes contributed to a sharp reduction in the number of small family farms, which in 1900 were still a foundation of American society. In addition, doctors were the first to use automobiles and were able to provide better medical care in rural areas. Institutions, such as regional schools and hospitals were now accessible by bus and car. As a result, cars began to break down class distinctions as rural Americans came into cities for shopping and entertainment (Dunn).

One of the first impacts the automobile had on society was the new sport of auto racing. The designs of early automobiles were already geared for racing (Szudarek 238). Auto racing provided great advertisement for the cars and automobile manufacturers realized that to sell new cars, it certainly helped to win races. As NASCAR became popular in the late 1950s, “Win on Sunday sell on Monday” became the automotive sales mantra for years (Evolution of a Stock Car).

One of the nations first superhighways was the Pennsylvania Turnpike. Built when the nation was still recovering from The Great Depression, the PA Turnpike was so unique that a model of it was displayed at the General Motors Highways exhibit at the 1939 New York City World's Fair (Turnpike History). The combination of the PA Turnpike and the automobile industry had a bearing on our society and culture not thought of at the time.

At the outbreak of World War II, auto manufacturers shut down their assembly lines to build materials vital to win the war. The PA Turnpike, with its long, straight wide lanes greatly reduced the time it took to get the finished materials from the factories of the Motor City to the docks of the east coast, helping to shorten the war. After World War II, other factors influenced the popularity and necessity of the automobile.

World War II limited the products that consumers could buy, but after the war, consumerism fueled the postwar economy. The large number of men returning home also created a serious housing shortage. Jobs were plentiful and the GI Bill of 1944 provided money for returning soldiers to purchase a home (GI Bill). Levittown communities, the birth of suburban sprawl, were mass-produced low-cost housing complexes containing thousands of homes that were built on the outskirts of New York and Philadelphia in the early 1950s (Brancheau, et al.). As Kellie Patrick wrote in the Philadelphia Inquirer, radical accelerating outward expansion away from the cities further influenced societal change as vast landmasses began shifting away from their agricultural roots to paved over planned urban developments (B7). Because the suburbs usually lacked public transportation, automobiles changed the very institution

of our culture from a society of tight-knit neighborhoods where you could walk anywhere you needed to, into a mobile society where it was necessary to drive anywhere you wanted to go.

After WWII the middle class enjoyed a prosperous lifestyle that their parents never could have imagined. Many of the families moving to the suburbs were second generation Americans. Leaving the ethnic enclaves of their city neighborhoods diluted their own cultural and social uniqueness as they blended into the American melting pot (Olmsted and Vaux). Along with the ability to purchase their own homes, the thriving economy allowed their children to attend college, plus they had more leisure time to enjoy their way of life. In addition to all the other benefits that come with increased wealth and secure income came a new economic phenomenon – disposable income (Brancheau, et al.). The “automobile rapidly became a symbol of social status...and more than almost any other possession, allowed people to flaunt wealth; ownership of an automobile demonstrated a certain level of income and prestige” (Cultural Changes). People began purchasing cars (and other “creature comforts”) not because there was anything wrong with the cars they had, but so they could have the latest, greatest technology, and to “keep-up-with-the-Joneses.” Moreover, in 1940 E.B. White wrote, “The motor car is, more than any other object, the expression of the nation’s character, and the nation’s dream” (Ulrich).

The automobile also had negative impacts such as traffic congestion, and highway accidents. Admittedly, city streets were congested long before the automobile existed. However, during the 1950s the problem compounded as motorists living in suburbs entered and exited cities creating rush-hour traffic. Modern highways

were planned and built to provide easier access to downtown areas. Sadly, these roads designed to alleviate traffic congestion meant building freeways right through the hearts of the cities, disrupting neighborhoods and destroying scenic and historic areas and ultimately stimulated even more suburban growth.

Of course as the number of cars on the roads increased, so did the number of accidents. Cars built during the first half of the 20th century were designed to look good with safety being an afterthought (Kallen 94). From 1950 to 1959 there was an average of 35,780 traffic accident related deaths a year (Motor Vehicle Traffic Fatalities). Yet, car safety wasn't very important to auto manufacturers or consumers, even though the social and economic costs were enormous (Traffic Accidents, Encarta). According to a report from the University of Colorado, Boulder, "the approach to each of these problems illustrates a common tendency to blame the technology, rather than the way in which the technology has been used" (Brancheau, et al.). Even though lapbelts were offered as an option in 1950, they were viewed by the general public as a novelty rather than a life-saving device (Ford).

Scientific discoveries had a significant influence on the development and success of the automobile. Discoveries such as rubber vulcanization increased tire durability and increased safety and driving comfort; plastics, especially Bakelite, helped reduce the cost of manufacturing and improved durability of electrical parts (Bellis, Plastics); windshield wipers made driving in all weather conditions possible and improved electronic systems such as the electric starting motor were a tremendous advancement: People actually got killed from being hit with the crank if the engine kicked-back while being cranked by hand (Szudarek 250). In fact, other

significant developments in the fields of metallurgy and textiles helped lower the cost of a vehicle, increased component durability and made driving more fun (SAE 106).

Thermal cracking of crude oil revolutionized the petroleum industry and reduced the cost of gasoline (SAE 185). Before 1900 gasoline was regarded as a useless product and was actually thrown away. New oil fields were opened in Texas to supply refineries with all the crude oil they needed to produce plenty of cheap gasoline (Szudarek 344). This begs the question: the petroleum and tire industries made the auto industry viable, but if it weren't for the automobile, would there be the petroleum or tire industry?

According to Arthur I. Miller, as with most technologies, cars had an influence on art (424). Marcel Duchamp's abstract painting *Nude Descending the Staircase* (1912) was inspired by Cubist ideas and suggests a sense of motion, depth and volume, and inspired a movement by a group of radical artists, dubbed Futurists. Duchamp was also a co-founder of the DADA movement, a group of European artists that protested against World War I, society, and traditional thought. Futurist artworks defied intellectual analysis and eventually evolved into the Surrealism movement of the 1920's. A painting by Futurist Luigi Russolo, *Dynamism of an Automobile* (1913), anticipated wind tunnel testing (Miller 425).

According to *The Art of theAutomobiler*, "Cars call us to understand their hold on us and their important contribution to the human experience" (Classic Car Photography). During the "Roaring 20s" the Art Deco movement, with its sleek lines, clean curves, bright colors, and simple geometry brought about a new wave — a carefree spirit that dominated the art world. Art Deco would influence automobile

design in everything from streamlined body shapes to grilles, dashboards, door handles, seats, and hood mascots (Powell). The art of autobody coach building is a talent almost lost in the later half of the 20th century (Coach Building). With the demise of the Duesenberg in 1937, there has never been another American car that could come close to matching its sleek Art Deco splendor (Duesenberg History).

The automobile had a considerable impact on lifestyle changes of the 1950s. According to Professor Jessamyn Neuhaus, who specializes in twentieth century U.S. history and cultural studies, this was especially true of teenagers; a social-demographic that did not exist before WWII (Neuhaus, *The Teenager*). With the rise of the movie anti-hero, such as Marlon Brando and James Dean, whose films were seen in drive-in movies, teenagers began imitating the actors. Many purchased their own cars and began to rebel against their parents and authority (if wearing Poodle skirts, black leather jackets, duck tail hairstyles, tight jeans, t-shirts with rolled up sleeves and driving souped up cars and motorcycles constitutes "rebellion"). These behaviors added a new idiom to our language: juvenile delinquent. However, Neuhaus also wrote, "To my knowledge, the actual rates of juvenile delinquency did not go up during the 1950s...but social and political concern about the issue did" (Email, Dec. 2004). Certainly the automobile wasn't entirely responsible for this segment of social upheaval, but was a contributing factor within the framework of the era's social changing dynamic.

Another significant bearing the automobiles had on society and culture was institutional discrimination. Professor Kevin Delaney states, "Institutional discrimination is when the routine everyday activities of a social institution provide

uneven outcomes for different groups.” For example, where a group lives and the amount of taxes they pay are proportional to the amount of services they receive. With more lucrative jobs leaving the cities, plus additional government funds being allocated to improve traffic flow outside of metropolitan areas, less fiscal support was available for public transportation. Cuts in public transportation reduced the opportunities for people living in the city – especially the poor who could not afford a car – to pursue high paying jobs in the suburbs. Public transportation is a life raft, but the mode to independence is the automobile (Staley).

In conclusion, the American lifestyle was completely reinvented to accommodate the automobile. Our love affair with the automobile has influenced everything from the designs of our cities to the subjects of our songs (This Day In History). Unfortunately, our automobile-dependent society has also resulted in streets clogged with cars, high fossil-fuel consumption and smog-filled cities.

From 1900 to 1960, the automobile provided an outlet for individuals, spread the freedom of travel among all classes and stimulated our economy. By 1958, there were more cars than households. The car helped introduce rural dwellers to unknown facets of urban life while spawning huge suburban growth. Many people approved the social impacts of the automobile, but some questioned them.

Nevertheless, the automobile continued to revolutionize America, transforming our society and culture, and by 1960 they were the norm of everyday life in the United States. Ultimately, the car became more than just a form of transportation, but a culture within its own.

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