

WE'RE BOOMING!!

Textbook: Illustrated History of the USA, pp 88-95

CRITICAL QUESTION: how important is the automobile (and other modern inventions of the 1920's) to the theme of "Gatsby"?

Henry Ford and the "american system"**1 The Search for American Character**

Divine, Robert, et. al.. America, Past and Present, vol 2. Glenview, Ill, London: Scott, Foresman and Co., 1987

THE BACKGROUND

Mass production of automobiles began in the first years of the century. Using an assembly-line system that foreshadowed later techniques, Ransom E. Olds turned out five thousand Olds runabouts in 1904. But Olds' days of leadership were numbered. In 1903 Henry Ford and a small group of associates formed the Ford Motor Company, the firm that transformed the business.

Ford was forty years old. He had tried farming and hated it; during the 1890s he worked as an engineer for Detroit's Edison Company but spent his spare time designing internal combustion engines and automobiles. At first, like many others in the industry, he concentrated on luxury and racing cars. Racing his own cars, Ford became the "speed demon" of Detroit; in 1904 he set the world's land speed record—over ninety miles per hour—in the 999, a large red racer that shot flames from the motor.

In 1903 Ford sold the first Ford car. The price was high and in 1905 Ford raised prices still higher. Sales plummeted. In 1907 he lowered the price; sales and revenues rose. Ford learned an important lesson of the modern economy: a smaller unit profit on a large number of sales meant enormous revenues. Early in 1908 he introduced the Model T, a four-cylinder, twenty-horsepower "Tin Lizzie," costing \$850, and available only in black. Eleven thousand were sold the first year.

"I am going to democratize the automobile," Ford proclaimed. "When I'm through everybody will be able to afford one, and about everyone will have one." The key was mass production, and after many experiments, Ford copied the techniques of meat packers who moved animal carcasses along overhead trolleys from station to station. Adapting the process to automobile assembly, Ford in 1913 set up moving assembly lines in his plant in Highland Park, Michigan, that dramatically reduced the time and cost of producing cars. Emphasizing continuous movement, he strove for a nonstop flow from raw material to finished product. In 1914 he sold 248,000 Model T's.

That year Ford workers assembled a car in ninety-three minutes, one tenth the time it had taken just eight months before. By 1925 the Ford plant turned out 9109 Model T's, a new car for every ten seconds of the working day.

While Ford was putting more and more cars on the road, the 1916 Federal Aid Roads Act, a little-noticed measure, set the framework for road building in the twentieth century. Removing control from county governments, it required every state desiring federal funds to establish a highway department to plan routes, oversee construction, and maintain roads. In states that had such departments, the federal government paid half the cost of building the roads. Providing for a planned highway system, the act produced a national network of two-lane, all-weather inter-city roads.

THE SYSTEM

By 1920 close to one half of all industrial workers worked in factories employing more than 250 people. More than a third worked in factories that were part of multiplant companies.

Industries that processed materials—iron and steel, paper, cement, and chemicals—were increasingly continuous and automatic. In the glass industry, machines ended the domination of highly skilled and well-paid craft workers. In 1908 Irving W. Colburn invented a machine to manufacture plate glass; the Libbey-Owens-Ford Company bought the patent; and Ford soon had a glassmaking machine from which emerged every day for two years a 3 1/2 -mile ribbon of automobile window glass, eventually reaching a length of almost 2000 miles.

Workers tending such ribbons could not fall behind. Foremen still managed the laborers on the factory floor, but more and more the rules came down from a central office where trained, professional managers supervised production flow. Systematic record keeping, cost accounting, and inventory and production controls became widespread. Workers lost control of the work, pace. "If you need to turn out a little more," a manager at Swift and Company said, "you speed up the conveyor a little and the men speed up to keep pace." It worked. In the automobile industry, output per manhour multiplied an extraordinary four times between 1909 and 1919.

Workers caught up in the changing industrial system experienced the benefits of efficiency and productivity; in some industries they earned more. But they suffered important losses as well. Performing repetitive tasks, they seemed part of the machinery, to whose pace and needs they moved. Bored, they might easily lose pride of workmanship, though many workers, it is clear, did not. Efficiency engineers experimented with tools and methods, a process many workers found unsettling. Yet the goal was to establish routine—to work out, as someone said of a garment worker, "one single precise motion each second, 3600 in one hour, and all exactly the same." Praising that worker, the manager said: "She is a sure machine."

The moving assembly line that Henry Ford developed in 1913 for manufacture of the Model T marked only the first step toward full mass production and the beginning of America's worldwide industrial supremacy. A year later, Ford began buying large plots of land along the Rouge River southeast of Detroit, Michigan. He already had a vision of a vast industrial tract where machines, moving through a sequence of carefully arranged manufacturing operations, would transform raw materials into finished cars, trucks, and tractors. The key would be control over the flow of goods at each step along the way, from lake steamers and railroad cars bringing in the coal and iron ore, to overhead conveyor belts and huge turning tables carrying the moving parts past the stationary

workers on the assembly line. "Everything must move," Ford commanded, and by the mid-1920s at River Rouge, as the plant became known, it did.

Ford began fulfilling his industrial dream in 1919 when he built a blast furnace and foundry to make engine blocks for both the Model T and his tractors. By 1924, more than forty thousand workers were turning out nearly all the metal parts used in making Ford vehicles. A tractor factory was so efficient that it took, just over twenty-eight hours to convert raw ore into a new farm implement.

Visitors from all over the world came to marvel at River Rouge. Some were disturbed by the jumble of machines (by 1926, there were forty-three thousand in operation) and the apparent congestion on the plant floor, but industrial experts recognized that the arrangement led to incredible productivity because "the work moves and the men stand still." A trained engineer summed it up best when he wrote that a visitor "sees each unit as a carefully designed gear which meshes with other gears and operates in synchronism with them, the whole forming one huge, perfectly-timed, smoothly-operating industrial machine of almost unbelievable efficiency."

In May 1927, after producing over fifteen million Model Ts, Ford closed the assembly line at Highland Park. For the next six months, his engineers worked on designing a more compact and efficient assembly line at River Rouge for the Model A, which went into production in November. By then River Rouge had more than justified Ford's vision. "Ford had brought together everything at a single site and on a scale no one else had ever attempted," concluded historian Geoffrey Perrett. "The Rouge plant became to a generation of engineers far more than a factory. It was a monument."

Mass production, born in Highland Park in 1914 and perfected at River Rouge in the 1920s, became the hallmark of American industry. Other car makers copied Ford's methods and soon his emphasis on the flow of parts moving past stationary workers became the standard in nearly every American factory. The moving assembly line—with its emphasis on uniformity, speed, precision, and coordination—took away the last vestiges of craftsmanship and turned workers into near robots. It led to amazing efficiency that produced both high profits for manufacturers and low prices for buyers. By the mid-1920s, the cost of the Model T had dropped from \$950 to only \$290.

THE RESULT

Most important, mass production led to a consumer-goods revolution. American factories turned out a flood of automobiles and electric appliances that made life easier and more pleasant for the vast majority of the American people. The result was the creation of a new America, one in which individualism was sacrificed to conformity as part of the price to be paid for a new era of abundance.

The twenties, often seen as a time of escape and frivolity before the onset of the Depression, actually marked a beginning, a time when the American people learned to adapt to life in the city, when they decided (wisely or not) to center their existence upon the automobile, and when they rejected their rural past while still longing for the old values it had created. It is in the 1920s that we can find the roots of modern America—the America we know today.

With the advent of new consumer-goods industries, the American people by the 1920s enjoyed the highest standard of living of any nation on earth. After a brief postwar depression, 1922 saw the beginning of a great boom that peaked in 1927 and lasted until 1929. In this brief period, American industrial output nearly doubled, and the gross national product rose by 40 percent. Most of this explosive growth took place in industries producing goods for consumers—automobiles, appliances, furniture, clothing. Equally important, the national per-capita income increased by 30 percent to \$681 in 1929. American workers became the highest paid in history and thus were able to buy the flood of new goods they were turning out on the assembly lines.

The key to the new affluence lay in technology. The moving assembly line pioneered by Ford became the standard feature in nearly all American plants. Electric motors replaced steam engines as the basic source of energy in factories; by 1929, 70 percent of all industrial power came from electricity. Efficiency experts broke down the industrial process into minute parts in time and motion studies and then showed managers and workers how to maximize the output of their labor. Production per man-hour increased an amazing 75 percent over the decade; in 1929, a work force no larger than that of 1919 was producing almost twice as many goods.

The nature of the consumer-goods revolution can best be seen in the automobile industry, which became the nation's largest in the 1920s. Rapid growth was its hallmark. In 1920, there were 10 million cars in the nation; by the end of the decade, 26 million were on the road. Production jumped from less than 2 million units a year to over 5 million by 1929.

The automobile boom, at its peak from 1922 to 1927, depended on the apparently insatiable appetite of the American people for cars. But as the decade continued, the market became saturated as more and more of those who could afford the new luxury had become car owners. Marketing became as crucial as production. Automobile makers began to rely heavily on advertising and annual model changes, seeking to make customers dissatisfied with their old vehicles and eager to order new ones. Despite these efforts, sales slumped in 1927 when Ford stopped making the Model T, picked up again the next year with the new Model A, but began to slide again in 1929. The new industry revealed a basic weakness in the consumer-goods economy; once people bought an item with a long life, they were out of the market for a few years.

Few noticed the emerging economic instability in the affluent 1920s. Instead, contemporary observers focused on the great stimulus the automobile had on the rest of the economy. The mass production of cars required huge quantities of steel; entire new rolling mills had to be built to supply sheet steel for car bodies. Rubber factories boomed with the demand for tires, as did paint and glass suppliers. The auto changed the very pattern of city life, leading to a suburban explosion as real estate developers, no longer dependent on street cars and railway lines, could now build houses in ever wider concentric circles around the central cities.

The automobile had a profound effect on all aspects of American life in the 1920s.... A nation that had always revered symbols of movement, from the Mayflower to the covered wagon, now had a new icon to worship.

Automobiles were the most conspicuous of the consumer products that flourished in the 1920s but certainly not the only ones. The electrical industry grew nearly as quickly. Central power stations, where massive steam generators converted coal into electricity, brought current into the homes of city and town dwellers. Two thirds of all American families enjoyed electricity by the end of the decade, and they spent vast sums on washing machines, vacuum cleaners, refrigerators, and ranges. The new appliances eased the burdens of the housewife and ushered in an age of leisure.

THE ENVIRONMENT

Radio broadcasting and motion-picture production also boomed in the 1920s. The early success of KDKA in Pittsburgh stimulated the growth of more than eight hundred independent radio stations, and by 1929 NBC had formed the first successful radio network. Five nights a week "Amos 'n Andy," a comic serial featuring two "blackface" vaudevillians, held the attention of millions of Americans. The film industry thrived in Hollywood, reaching its maturity in the mid 1920s when in every large city there were huge theaters seating as many as four thousand people. With the advent of the "talkies" in 1929, average weekly movie attendance climbed to nearly one hundred million.

Other industries prospered as well. Production of light metals such as aluminum and magnesium grew into a major business. Chemicals came of age with the invention of synthetics, ranging from rayon for clothing to cellophane for packaging. Americans found a whole new spectrum of products to buy—cigarette lighters, wristwatches, heat-resistant glass cooking dishes, and rayon stockings to name just a few.

The corporation continued to be the dominant economic unit in the 1920s. Growing corporations now had hundreds of thousands of stockholders, and one individual or family rarely held more than 5 percent of the stock. The enormous profits generated by these corporations enabled their managers to finance growth and expansion internally, thus freeing companies from their earlier dependence on investment bankers like J. P. Morgan. Voicing a belief in social responsibility and enlightened capitalism, the new professional class operated independently of outside restraint. In the last analysis, the corporate managers were accountable only to other managers.

Another wave of mergers accompanied the growth of corporations during the 1920s. From 1920 to 1928, some eight thousand mergers took place as more and more small firms proved unable to compete effectively with the new giants. By the end of the decade, the two hundred largest nonfinancial corporations owned almost half of the country's corporate wealth. The oligopoly in the automobile industry set the example for other areas. The greatest abuses took place in public utilities where promoters like Samuel Insull built vast paper empires by gaining control of operating power companies and then draining them of their assets.

The most distinctive feature of the new consumer-oriented economy was the stress on marketing. Advertising earnings rose from \$1.3 billion in 1915 to \$3.4 billion in 1926. Skillful practitioners like Edward Bernays and Bruce Barton sought to control public taste and consumer spending by identifying the good life with the possession of the latest product of American industry, whether a car, a refrigerator, or a cigarette. Chain stores advanced rapidly at the expense of small retail shops. A&P dominated the retail food industry, growing from 400 stores in 1912 to 15,500 by 1932. Woolworth's "five and tens"

spread almost as rapidly, while such drug-store chains as Rexall and Liggetts—both owned by one huge holding company—opened outlets in nearly every town and city in the land.

THE COST

Uniformity and standardization, the characteristics of mass production, now prevailed. The farmer in Kansas bought the same kind of car, the same groceries, and the same pills as the factory worker in Pennsylvania. Sectional differences in dress, food, and furniture began to disappear. Even the regional accents that distinguished Americans in different parts of the country were threatened with extinction by the advent of radio and films which promoted a standard national dialect devoid of any local flavor.

The New Era, as businessmen labeled the decade, Was not as prosperous as it first appeared. The revolution in consumer goods disguised the decline of many traditional industries in the 1920s. Railroads, overcapitalized and poorly managed, suffered from internal woes and from the competition of the growing trucking industry. Coal was another troubled industry, with petroleum and natural gas beginning to replace it as a fuel. Cotton textiles declined with the development of rayon and other synthetic fibers. The New England mills moved south in search of cheap labor, leaving behind thousands of unemployed workers and virtual ghost towns in the nation's oldest industrial center.

Hardest hit of all was agriculture. American farmers had expanded production to meet the demands of World War I, when they fed a nation at war and most of Europe as well. A sharp cutback in exports in 1919 caused a rapid decline in prices. By 1921, farm exports had fallen by more than \$2 billion. Throughout the 1920s, the farmers' share of the national income dropped until by 1929 the per-capita farm income was only \$273, compared to the national average of \$681.

Workers were better off than farmers in the 1920s, but they did not share fully in the decade's affluence. The industrial labor force remained remarkably steady for a period of economic growth; the technical innovations meant that the same number of workers could produce far more than before. Most of the new jobs came in the lower-paying service industry. During the decade, factory wage rates rose only a modest 11 percent; by 1929 nearly half of all American families had an income of less than \$1500. At the same time, however, conditions of life improved. Prices remained stable, even dropping somewhat in the early twenties, so that workers enjoyed a gain in real wages.

Middle- and upper-class Americans were the groups who thrived in the 1920s. The rewards of the second Industrial Revolution went to the managers—the engineers, bankers, and executives who directed the new industrial economy. Corporate profits nearly doubled in ten years, and income from dividends rose 65 percent, nearly six times the rate of workers' wages. Bank accounts, reflecting the accumulated savings of the upper-middle and wealthy classes, rose from \$41.1 billion to \$57.9 billion. These were the people who bought the fine new houses in the suburbs and who could afford more than one car. Their conspicuous consumption helped fuel the prosperity of the 1920s, but their disposable income eventually became greater than their material wants. The result was speculation, as those with idle money began to invest heavily in the stock market to reap gains from the industrial growth.

The economic trends of the decade had both positive and negative implications for the future. On the one hand, there was the solid growth of new consumer-based industries. Automobiles and appliances were not passing fancies; their production and use became a part of the modern American way of life, creating a high standard of living that evoked the envy of the rest of the world. The future pattern of American culture—cars and suburbs, shopping centers and sky-scrapers—was determined by the end of the 1920s.

But at the same time there were ominous signs of danger. The unequal distribution of wealth, the saturation of the market for consumer goods, and the growing speculation all created economic instability. The boom of the twenties would end in a great crash; yet the

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