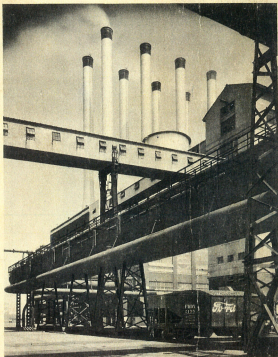


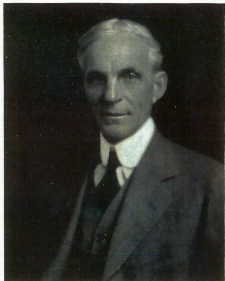
# THIRTY YEARS OF PROGRESS

1903



1933

FORD MOTOR COMPANY • DEARBORN, MICHIGAN



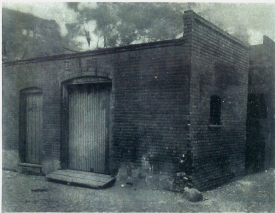
## HENRY FORD

Theodore Roosevelt was in the White House, the Panama Canal treaty had been ratified by the United States Senate, on the isthmus a little group of rebels were preparing to establish the Republic of Panama, two brothers named Wright were bringing to completion their plans for a flying machine—and in Detroit a new company was launched, the Ford Motor Company. + + That was thirty years ago on June 16, 1903, ten years after Mr. Henry Ford had commenced his first

experiments with an automobile. Hence June 16, 1933, marks not only the thirtieth anniversary of the company, but also the fortieth year since he made his first gasoline engine. That first engine still runs; and some of the men who began with him that June day in 1903 are still with him. "All of the principles we laid down then," he has said, "are still operative; we find that they have great survival value for the future." + + To date, they have produced and sold over 21,000,000 Ford cars. + +

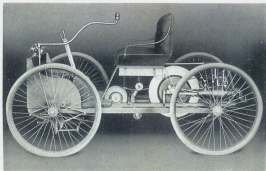


Someone has said that an institution is but the lengthened shadow of a man. While this volume is concerned with the record of progress of a commercial concern, the narrative properly begins with the man whose vision and labor it incarnates and by whose spirit it is led. ++ Henry Ford was born on July 30, 1863, in the old Springwells township between Dearborn and Detroit, where the homestead still stands. His father, William Ford, besides being one of the substantial farmers of the community, was also Justice of the Peace and Warden of the village church. ++ Whence come the gifts which differentiate a man from his fellows, is a matter of much speculation. The origin and conditions of genius are still veiled in mystery. Only the fact can be stated that, living the life of an average farm boy in a period when machinery of any kind was seldom found on a farm, Henry Ford early gave evidence of interests beyond the routine of fields and stables. ++ His childhood experiments, curiously enough, foreshadowed his later achievements. First it was a miniature water-wheel which he set up in the drainage ditch near the country schoolhouse. A watch fascinated him as an example of automotive power. He took one apart and easily put it together again. It was instinctively plain to him. An inborn affinity for mechanics, impossible to suppress, drove him in every waking moment. ++ One of Henry Ford's earliest impressions was that of too much work on the farm, too much hand labor, too little attention to possible methods of lifting the burden and releasing the farmer's energies to higher forms of endeavor. ++ With his own hands he built a crude farm tractor propelled by steam, which traveled forty feet under its own power before it stopped. It was not until he was convinced that steam was impractical on such a contrivance that he turned his hand to the newfangled gasoline engine. ++ With his entrance into the field of mechanics first as an apprentice boy in an engine works and then by fast stages up the scale to the position of Chief Engineer of The Detroit Edison Company, Henry Ford never lost his dream of supplying power for the farm. ++ Because this narrative proceeds at a much faster pace than



*Where the first Ford was completed in 1893, forty years ago.*

life itself, it would be a mistake to assume that Henry Ford reached his goal at a single bound. He was forty years old before he offered the Ford car to the world. His first engine was completed in 1893. The young inventor had strength of character and engineering conscience sufficient to invest his years between thirty and forty in bringing his product to the highest degree of simplicity and durability then possible before offering it to the world. It was not until 1903 that the famous "999" shot across the motor horizon. ++ With the Ford Motor Company launched on the small amount of \$28,000 paid-in capital, it began to meet the accumulated errors of the current business methods. Henry Ford decided that the results of mechanical engineering were not enough; there must also be sound moral engineering in the management of a concern's relation to society. It is necessary to take account of this fact in evaluating what afterward transpired in the history of the Ford Motor Company. ++ Against the current practice of charging all that the traffic would bear, the Ford Motor Company adopted the policy of building the



*The first car built by Henry Ford.*

best quality of service for the least money. It was the common business belief of the time that purchasers of motor cars should be charged exorbitant prices for replacement parts, on the theory that having bought the car the owner had to have the parts. The new company was quite revolutionary in holding that it was morally bound to supply its customers with needed parts at lowest prices. What this policy did to establish confidence in a new form of transportation against which the public suspicion was strong, it is impossible to compute. Such a policy could have been conceived only in a mind more intent on helping the public to see the value of the automobile than on making profits. The car itself, as a car, as a helper of the people, has always been first in Henry Ford's mind. ++ Counting from the first car Henry Ford made it required thirty years to produce the first five million Ford cars. But the second five million cars were built in three years, May, 1921, to June 4, 1924, when the ten millionth Ford car chugged briskly out of the shop to join its 9,999,999 forerunners. Just 381 days later (June 20, 1925) the twelve millionth Ford car was completed. The fifteen millionth car, officially the last of the Model T series, rolled out of the shops on May 25, 1927. ++ The Company

announced that an entirely new car would be brought out. To produce this new car, it was necessary to change over most of the vast machinery used to build the old one. Fully \$100,000,000 was expended in accomplishing this, and, on December 2, 1927, the Model A made its debut in many principal cities of the United States. ++ The 20,000,000th Ford car was completed April 14, 1931. Experimental work was in progress meanwhile on a V-8 cylinder engine and on March 31, 1932, the company brought out the new Ford V-8 as well as an improved Four. ++ Early in 1933 a larger and more powerful Ford car was introduced with a V-type 8-cylinder engine and 112-inch wheelbase. Since its introduction, the 21,000,000 mark in production was passed. ++ The profound effect of the Ford automobile on human society has its

counterpart in the effect upon industry of Henry Ford's ideas of social justice and responsibility. First the car was the thing—its perfection, its manufacture at lowest cost, its use by millions, its spread over the inhabited earth. Then came the deserts of those who had made that possible. "The Ford Idea" of industrial relations begins here and maintains harmony within the organization. ++ Right relations with employees, however, do not exhaust a great concern's moral obligation to society; there is also the consuming public to be thought of. Every economy in manufacture, every advantage due to increased production, has been shared

with the buying public. ++ The dream of the Dearborn farm boy of lifting burdens off men and placing them on motors, of releasing men from drudgery and giving them more of the freedom of life, is being realized. As you stand in the fields where the boy dreamed you may lift up your eyes and see the giant industry in which the dream has come true.



*Henry Ford and Edsel Ford with original lathe on which parts for first car were made.*





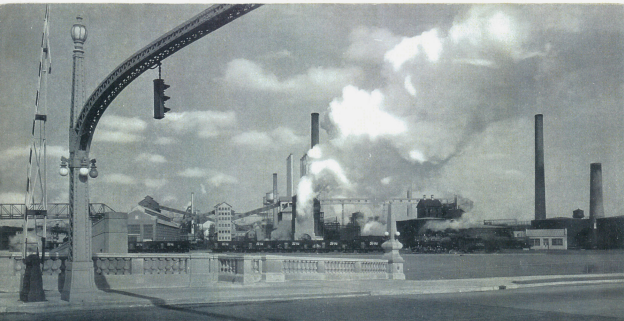
## THIRTY YEARS OF PROGRESS

The Ford Motor Company, a Michigan corporation, was incorporated on June 16, 1903. The capital originally subscribed was \$100,000, of which only \$28,000 in cash was paid into the treasury. There were twelve stockholders, including Henry Ford who held  $25\frac{1}{2}$  per cent of the stock. Later, in 1906, Mr. Ford acquired sufficient stock to bring his holdings up to 51 per cent, and shortly thereafter purchased an additional  $7\frac{1}{2}$  per cent. In 1919, Edsel B. Ford, who had succeeded his father as president, purchased the remaining  $41\frac{1}{2}$  per cent of the outstanding stock. On July 9, 1919, the Ford Motor Company was organized under the laws of Delaware, with an authorized capitalization of \$100,000,000. The Company is chartered to build auto-

mobiles, trucks, tractors, aircraft, internal combustion engines, ships, locomotives, and all allied products. + + The Company is probably the largest manufacturing enterprise in the world and an accurate valuation of its properties is difficult. But enormous though they may appear, they are small in comparison with the value of the methods of manufacturing which the Company has worked out during the last thirty years with the active assistance of Henry Ford. It might be possible to construct a series of plants and to duplicate the Ford organization in size, but no amount of money could duplicate the value of thirty years of constructive experience and Henry Ford's personal talents applied during that period. + + The Ford organization

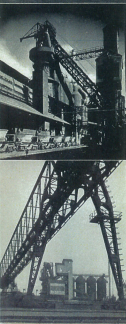


*In this frame building the Ford Motor Company first began manufacturing cars in 1905. The building was located on Mack Avenue in Detroit. The Company remained here until 1905 then moved to a plant at Fiquette and Beaubien Streets, Detroit. In 1909 manufacturing began at the Highland Park plant where the famous assembly line method of building cars, originated by the company, became a model for the industrial world.*



*Above: A general plant view showing coke ovens — power house smoke stacks in the rear.*

*Plants of the Rouge Plant in Dearborn, the present home of the Company. The plant has an area of 1,096 acres and is said to be one of the largest industrial plants in the world.*

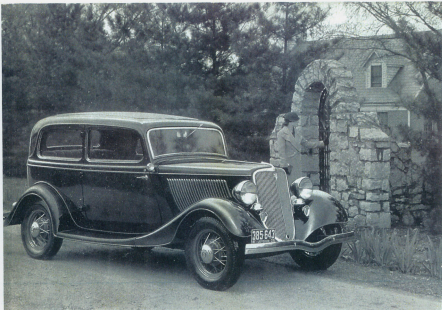


*Left Top: A close up of the blast furnaces with ladle cars in foreground.*

*Left Below: Looking at the blast furnaces from the dock.*



*Right: A view of the docks where Great Lakes freighters unload iron ore, limestone, coal and lumber.*

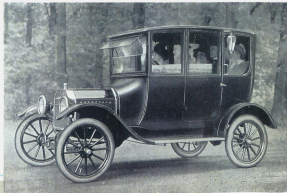


*The 1923 Ford V-8 cylinder Deluxe Taylor Sedan with 112-inch wheelbase, of beautiful modern design, which retails for \$510 F.O.B. Detroit, plus freight and delivery. Runners and spare tire extra.*

represents a complete industrial chain in which every link is strong. Raw materials, transportation and manufacturing are entirely under its control. The Ford industries are independent to a large extent of price fluctuations or the shortage of raw materials. Manufacturing cycles have been worked out with such precision and the transportation element is so well in hand that the Company requires only small inventories. Thus enormous sums of money are released for other purposes including, for example, experimental work conducted on a large and efficient scale hitherto unheard of. Few institutions could risk a million dollars on the manu-

facture of a single power unit, heretofore untried, or spend a quarter of a million dollars in developing one single type of productive machine as the Ford Motor Company has done many times. ++ The wide range of activities and the broad scope of interests which mark the Ford Motor Company for its unique place in industry are mentioned in the following pages. ++ The Company operates thirty-

*And here you see the Ford Model T Sedan of 1918, an attractive car in its day, which sold for \$740 F.O.B. Detroit.*

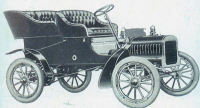




*Left: The first Model A, 1903, with tonneau. It sold for \$910 F. O. B. Detroit. As a Runabout, without tonneau, the price was \$250 less.*



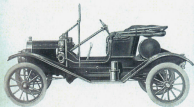
*Right: The 1914 Model T Touring Car, a most popular automobile in the early days. In 1914 it sold for \$490 F. O. B. Detroit.*



*Left: This pretentious looking car is the Model C town car of 1905 and it retailed for \$1,000 F. O. B. Detroit.*



*Right: In 1914 the Town Car had an appeal for those who went in for extremes in style. Price was \$690 F. O. B. Detroit.*



*Left: The Model T was introduced in 1908 and this Roadster was one of the fine body types. Price was \$825 F. O. B. Detroit.*



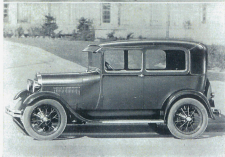
*Right: Many will recall the Model T Sedan. It was popular in 1915 and then sold for \$740 F. O. B. Detroit.*



*Left: This is the Model T Coupe of 1923, nearing the time when wooden wheels went out. It sold for \$525 F. O. B. Detroit.*



*Right: The Model A Phaeton of 1929 reflected the changing style in open cars. The price was \$889 F. O. B. Detroit.*



*Left: The last year of the famous Model T brought this Fordor Sedan of 1927 to the public. The price was \$545 F. O. B. Detroit.*

*Right: Another change in style came with the introduction of the Model 18, V-8 cylinder car in 1933. The Deluxe Fordor sold for \$645 F. O. B. Detroit.*



*Left: In 1927 when the Ford Model A car was introduced the Tudor Sedan became one of the popular types. Price was \$695 F. O. B. Detroit.*

*Right: 1935 Standard Fordor Sedan, powered by the V-8 engine. Price is \$589 F. O. B. Detroit, plus freight and delivery. Bumpers and spare tire extra.*

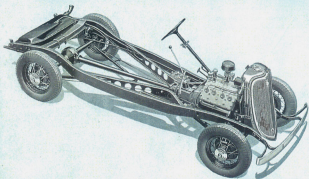
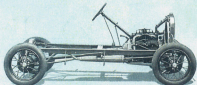
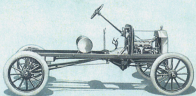
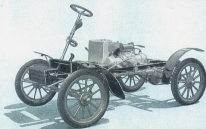


two branches in the United States, for distribution of cars to Ford dealers. Foreign branches and associated companies are located at many important trade centers. + + The cycle of Ford manufacture begins in the iron and coal mines, and includes the conversion and fabrication of materials until completed Ford products are placed in the hands of the customer. + + In the City of Dearborn, just west of Detroit, is the Rouge plant, with an area of 1,096 acres, said to be one of the largest industrial plants in the world. Here the Company has its own blast furnaces, coke ovens, foundry, machines shops, body plant, glass furnaces, cement plant, paper mill, steel mill, by-products plant, locomotive repair shop and power plants. + + Along the River Rouge are storage bins having a combined capacity of two million tons. Ore, limestone and coal are unloaded here from Ford-owned ships. + + For many years Ford activities were centered near Detroit at Highland Park, where they occupied a plant of 273 acres. This huge plant was frequently called "the cradle of the Ford in-

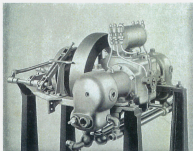
*The 1902 Model A chassis, with two-cylinder engine. The wheelbase was 72 inches. It had a chain drive. The car speed was 30 miles an hour.*

*The Model T chassis with four-cylinder engine. This car was introduced in 1908. The wheelbase was 100 inches. More than 15,000,000 Model T's were sold.*

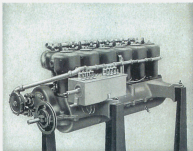
*The new Model A chassis introduced in 1917 had a vastly improved 4-cylinder engine. The wheelbase was 107 1/2 inches.*



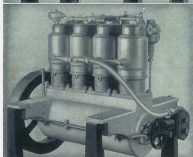
*This is the 1933 Model 48, V-8 cylinder chassis with the sturdy X-type frame. Wheelbase 112 inches.*



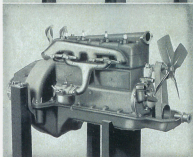
*Left: Model A engine, 1903. Two-cylinder opposed horizontal. Bore and stroke 4 x 4 inches. Horsepower, 8.*



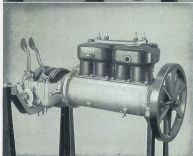
*Right: Model R engine, 1907. Six-cylinder vertical. Bore and stroke, 4½ x 4½ inches. Horsepower, 40.*



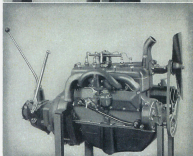
*Left: Model B engine, 1904. Four-cylinder vertical. Bore and stroke 4½ x 5 inches. Horsepower, 24.*



*Right: Model T engine, introduced in 1908. Four-cylinder, vertical. Bore and stroke, 3½ x 4 inches. Horsepower, 20.*



*Left: Model N engine, 1906. Four-cylinder vertical. Bore and stroke, 3½ x 5½ inches. Horsepower, 15.*

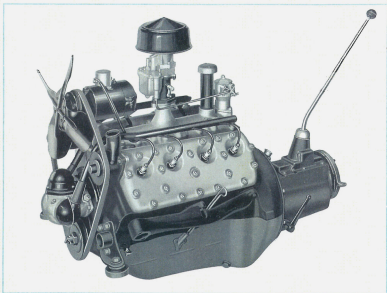


*Right: Model A engine, introduced in 1927. Four-cylinder vertical. Bore and stroke, 3½ x 4¾ inches. Horsepower, 40.*





*Model V-8 engine, 1923. Cylinders cast in one block at 90-degree angle. Aluminum cylinder heads. Bore and stroke,  $3\frac{1}{2} \times 5\frac{1}{4}$  inches. Horsepower, 75. Because of its simplicity of design, the engine is easily serviced, thus maintaining the Ford standard of economical operation.*



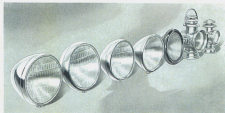
dustry," since for many years until the completion of the Rouge plant it was the principal manufacturing establishment of the Company. During 1929 and 1930, all of its activities, with a very few exceptions, were centered in the Rouge plant. In the City of Detroit is located the Lincoln plant, devoted entirely to the building of the Lincoln automobile. At Dearborn, west of the Rouge plant, is the Ford experimental laboratory, as well as Ford Airport and the airplane manufacturing plant. + + Other manufacturing units are located at Hamilton, Ohio; Flat Rock, Michigan; Green

Island, New York; St. Paul, Minnesota; and Iron Mountain, Michigan; all utilize water power. Smaller units operated by hydroelectric power are at Phoenix, Northville, Waterford, Plymouth, Ypsilanti and Nankin Mills, all in Michigan. + + In December, 1930, a new plant was opened at Edgewater, New Jersey, to replace the one at Kearny which had been outgrown. The Edgewater plant was hailed as the largest of its kind on the East Coast. It was also declared to be the largest assembly plant that the company had erected up to that time. + + Among the most

recent additions to the activities carried on under Ford direction are the Edison Institute of Technology; Greenfield Village; and the new Dearborn Inn, a public hotel. ++ Years ago Henry Ford realized that the transportation needs of America must be satisfied largely through the production of more motor vehicles, and that this situation would cause a growing demand for Ford cars. Even when the Company was breaking all records with a production of 200,000 cars a year, Mr. Ford appreciated that ten years hence nine or ten times as many Fords would find a ready market. This, however, would render necessary a better control over the sources of raw materials, particularly the primary necessities—coal, iron, wood, steel and glass, as well as protection against non-supply from any source or for any

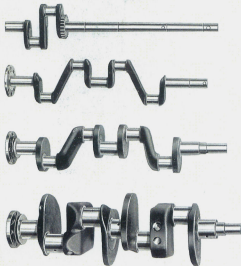


*Thirty years of progress between the 28-inch wooden wheel with 3-inch tire of the 1903 Model A to the steel spoke one-piece electrically welded wheel of the 1933 Ford car with 3.10 x 17 balloon tires.*

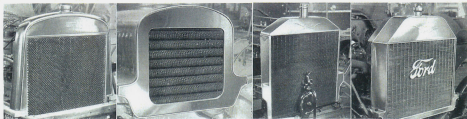


*First there came the old brass oil lamps that flickered over rutty roads at night. Then the bright glare of the Model T headlamps and today, the modern lamp with depreciable base, sending a white shaft of light 250 feet ahead of the car.*

*The evolution of crankshafts—Top to bottom—Model A, two-cylinder engine, 1903; Model T, four-cylinder engine, 1908; Model A, four-cylinder engine, 1927; Model 60, V-8 cylinder engine, 1933.*



reason—high prices, transportation difficulties or labor troubles resulting in non-production. ++ With this in mind Henry Ford visualized the gigantic Rouge plant with its coke ovens, blast furnaces, and steel mills, which would convert raw materials into finished products with the minimum waste and expense. This plant was to be the enormous machine which would perpetually insure low prices for Ford products. But before long it was found that the Company would have to go even further in its control



*Radiator of the Model B Ford car, of 1904.*

*A little more style to the Model C 1905 radiator.*

*Cooling surface was increased on the Model N radiator, 1906.*

of raw material. + + Iron and coal form the backbone of the automotive industry; iron because it is the principal component of a motor car, and coal because it is necessary both in the manufacture of iron and the production of power. The cost of iron and coal delivered at a plant largely governs the selling price of the product. No matter how efficiently or economically a manufacturing organization may be operated, the fluctuating market prices of raw materials are beyond its control. The only way to avoid price fluctuations is to control the source of raw material. + + The Ford Motor Company protected itself against outside market influences besides rendering itself and its customers independent of price fluctuations, by acquiring vast coal reserves, iron properties and timber lands. These are coördinated under one general management and the materials meet at the Rouge plant where they are converted into finished products. + + The coal properties lie in Kentucky and

*The familiar Model T radiator of the early days.*

*Later on the Model T radiator was changed to this style.*



*The Model A, introduced in 1927, brought a new radiator design.*



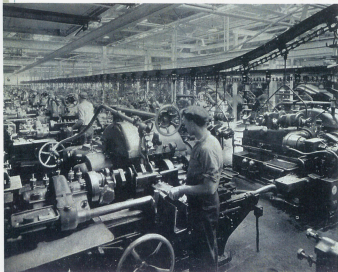
*The 1933 Ford V-8 radiator reflects the modern mode.*





*Manufacturing methods have changed easily in the course of years. Above is a scene in the old crankshaft department of the Highland Park plant in 1925, where machines and lathes were operated by belts, and crankshafts carried from one machine to another.*

*Below: the crankshaft department in the Rouge plant today. Every machine run by an individual motor and conveyors to carry the crankshafts from one operation to the next.*



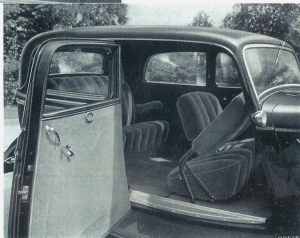
West Virginia. The iron and timber lands are located in Northern Michigan. + + The Rouge plant lies between them. + + The Rouge plant has been described as "all things to all men." In sheer magnitude of operations it is overwhelming. Its production operations are on a vaster scale than has been known since the days of the pyramids. + + In spite of its size, the plant's chief marvel to visitors is its efficiency, the dispatch with which the work moves along, the absence of waste both in human labor and in materials. Many reasons for this may be discovered, and each of them is important to a large degree. Cleanliness throughout the plant, constant maintenance, huge investments and a carefully planned progressive program are cited. + + To the transportation expert the Rouge plant offers the last word in methods of material handling. + + The chemical engineer discovers in its coke ovens and by-products plant practice and equipment that are second to none. + + The metallurgist, who specializes in steel and iron, encounters a quality of design, construction and operation in blast furnaces and auxiliary equipment, and in open hearth, soaking pits and rolling mill that compels un-



*Fifteen years has wrought a vast change in interiors of cars. Above is the Model T Coupe of 1918 and to the left an interior view of the 1933 Ford V-8, Deluxe Five-window Coupe, with deeply cushioned seat trimmed in rich mohair, and every comfort for driver and passenger.*



*Here is an illustration of ten years of progress in car design. Below, the interior of the 1922 Ford Sedan. At the right, looking into the 1933 Ford V-8 Deluxe Tudor Sedan, with spacious, inviting interior and wide door for easy entrance.*





*The Ford Motor Company on June 16 celebrated its thirtieth anniversary. In observance of the occasion various Ford cars were driven to Greenfield village, Henry Ford's old time village at Dearborn, Mich., and there exhibited, exemplifying thirty years of progress in the building of automobiles. In the above picture Henry and Edsel Ford are seen reviewing the cars. From left to right the cars are Model A, introduced in 1903; Model B, 1904; Model C, 1905; Model K, 1907; Model T, 1908; Model T, 1918; Model A, 1927, and the Model 10, today's eight-cylinder Ford car.*

stinted admiration. + + The power engineer, in turn, observing the principles and methods applied to machining and assembling the cars and trucks, notes ways of conserving human energy and utilizing machinery that are at the forefront of present-day shop practice. + + The man who handles men sees at this plant a maximum of sustained accomplishment with a minimum of supervision. + + The variety of products is bewildering—finished motors, zinc, iron and aluminum castings, paper, cardboard, glass, motor car bodies, benzol, ammonium sulphate, steel, coke,

cement, sheet metal, electric power—and many more. As a writer said in *Industrial Management*: + + "Beyond all this, however, the experienced observer of industrial undertakings catches a glimpse of something larger and more significant. He will see these units not only in their impressive individual and astounding collective magnitude, but also 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 and smoothly operating machine of almost unbelievable efficiency."