

# DECENTRALIZATION OF THE AKRON RUBBER INDUSTRY

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The growth of the rubber industry is reflected in the development of the Akron area as the major center of rubber manufacturing in the United States. Until recently, the Akron rubber companies manufactured half of the nation's tires as well as a large part of all the other rubber goods. Harold McCarty (1940) states, "It is difficult to find a city more highly specialized in the manufacture of a single product."

However, since 1929 when the greatest concentration occurred, there has been a relative decline in the proportion of the industry located in the Akron area. Recent Census of Manufactures data for 1954 show that Akron had only 3.3 percent of the total number of establishments in the industry and 17.6 percent of the total number of production workers (table 1). In the tire and tube divi-

TABLE 1<sup>1</sup>  
*Relative part of the United States rubber industry  
concentrated in the Akron area, 1954  
(Money figures in thousands of dollars)*

Industry Division	Akron area		United States Total
	Total	Percent	
<b>Tire and Inner Tubes:</b>			
No. of Establishments	6	12.2	49
No. of Employees	34,611	37.3	92,748
Production Workers	26,117	35.3	73,976
Value Added by Mfg.	211,125	24.9	844,545
<b>Rubber Products: (Not elsewhere classified)</b>			
No. of Establishments	37	2.8	1,315
No. of Employees	10,229	7.7	132,503
Production Workers	7,626	7.3	104,028
Value Added by Mfg.	73,933	7.9	930,086
<b>Total Rubber Products</b>			
No. of Establishments	47	3.3	1,406
No. of Employees	45,930	18.6	246,526
Production Workers	34,660	17.6	196,237
Value Added by Mfg.	294,030	15.4	1,903,701

<sup>1</sup>U. S. Bureau of the Census, Census of Manufactures, 1954: Vols. II and III, (Washington: Government Printing Office, 1957).

sion, Akron's share in 1954 was greater with 12.6 percent of the total number of establishments and 35.3 percent of the total number of production workers in this division (table 1).

The purposes of this paper are to note some of the changes which have occurred in the concentration of rubber manufacturing in the Akron area and to examine several of the factors which have influenced the decentralization of the industry. In this study, the Akron area includes the territory within the corporate limits and immediate environs of the cities of Akron and Barberton, Ohio, which are contiguous.

*Period of Concentration, 1921 to 1929*

The concentration of the rubber industry in the Akron area occurred chiefly during the period from 1921 to 1929. Using the number of production workers as a measure of manufacturing, these data show that Akron's share of the rubber industry increased constantly during this period (table 2). In 1921 the Akron rubber factories employed 22.9 percent of the total production workers in the rubber industry in the United States. By 1925 Akron's share of the total production workers had increased to 31.7 percent. The greatest concentration of the industry occurred in 1929 when the Akron rubber factories employed 35.6 percent of the total production workers in rubber manufacturing.

The concentration of rubber manufacturing from 1921 to 1929 appears to have been due largely to the cumulative advantages of an early start, growth in scale of operations, and a favorable market location. With three of the "big four" tire companies in the area, Akron was the center of competition in the rubber industry and here was found the leadership in introducing innovations in methods and machines. The "big four" tire companies include the United States Rubber Company, Goodyear Tire and Rubber Company, B. F. Goodrich Company, and Firestone Tire and Rubber Company. The home offices and major manufacturing

TABLE 2<sup>1</sup>

*The number and percentage of production workers in the rubber industry in the United States and in the Akron area for selected years*

Year	Akron area		United States Total number
	Number	Percent	
1921	23,697	22.9	103,273
1923	36,578	26.5	137,868
1925	44,757	31.7	141,121
1927	45,495	32.0	141,979
1929	53,172	35.6	149,148
1933	32,000	30.1	106,283
1937	37,419	28.8	129,818
1939	30,579	25.3	120,740
1947	49,813	23.2	214,533
1954	34,660	17.6	196,237

<sup>1</sup>The Census of Manufactures for the years given.

plants of the latter three are located in Akron. An indication of the increasing scale of operations and the competitive strength of the plants in Akron was noted in the decline in the number of tire and tube plants throughout the country. In 1921 there were 178 tire and tube establishments in the United States, but by 1929 the number was only 91 plants, with 14 located in Akron. Rubber factories concentrated in the Akron area were well situated to minimize transportation costs on finished products by being near the original equipment market and in the heart of the tire replacement market.

During the period from 1920 to 1929, some dispersion of the rubber industry to locations outside the Akron area occurred as a result of the re-location of one of the large tire companies and the erection of branch facilities by the other tire companies in Akron. In 1920, the Kelly-Springfield Tire Company wanted to expand its facilities but its physical plant in Akron was nearly surrounded by the Goodyear plants. As a result, the company relocated its entire plant facilities in Cumberland, Maryland, in an effort to be near the luxury tire market in the East which it supplied. The Kelly-Springfield Tire Company declined in its new

location until 1935 when controlling interest was purchased by the Goodyear Tire and Rubber Company.

In the same period, other Akron rubber companies erected branch plants at locations outside Akron (table 3). In 1920 the Goodyear Tire and Rubber Com-

TABLE 3<sup>1</sup>

*The location of the major branch plants of the Akron area companies in the United States during the period 1920-1958*

Parent Company	Branch Plant Location	Year Established	Products Manufactured
Goodyear Tire and Rubber Company:	Los Angeles, Cal.	1920	tires
	Gadsden, Alabama	1929	tires
	Cumberland, Md.	1935	tires and tubes
	Windsor, Vermont	1936	heels and soles
	Jackson, Michigan	1937	tires
	St. Marys, Ohio	1939	mechanical goods, pliofilm
	Lincoln, Nebraska	1943	industrial rubber goods
	Muncie, Indiana	1943	tread rubber, brake lining
	New Bedford, Mass.	1943	bicycle tires
	Topeka, Kansas	1943	farm and truck tires
	N. Chicago, Ill.	1955	rubber hose
	Chevalis, Wash.	1957	tread rubber
B. F. Goodrich Company:	Los Angeles, Cal.	1928	tires and latex
	Watertown, Mass.	1930	footwear and flooring
	Cadillac, Mich.	1937	industrial rubber products
	Oaks, Penn.	1937	tires
	Clarksville, Tenn.	1939	soles and heels
	Miami, Oklahoma	1943	tires
	DuBois, Penn.	1945	golf ball centers
	Riverside, N. J.	1945	latex supplies
	Tuscaloosa, Ala.	1945	tires
	Troy, Ohio	1947	products for aircraft interiors
	Marietta, Ohio	1950	Koroseal materials
	Marion, Ohio	1950	industrial products
	Derby, Conn.	1954	sponge rubber products
	Shelton, Conn.	1954	sponge rubber products
Greenville, Ky.	1957	footwear and flooring	
	Exeter Borough, Pa.	1958	tire cord
Firestone Tire and Rubber Company:	Los Angeles, Cal.	1927	tires
	Fall River, Mass.	1937	mechanical goods
	Memphis, Tenn.	1937	tires
	Noblesville, Ind.	1937	mechanical goods
	Newcastle, Ind.	1942	mechanical goods
	Pottstown, Penn.	1943	tires
	Des Moines, Iowa	1945	tires
	Magnolia, Ark.	1954	defense products
	Quincy, Ill.	1957	fabricated products
General Tire and Rubber Co.:	Wabash, Ind.	1937	mechanical goods
	Waco, Texas	1943	tires
	Jeanette, Penn.	1945	athletic goods, plastics
Seiberling Rubber Company:	Carey, Ohio	1950	heels and soles
	Newcomerstown, Ohio	1954	plastics

<sup>1</sup>The above list does not include synthetic rubber plants, plants making non-rubber products, foreign branch plants, and branch plants supplying materials to the Akron area plants.

pany set up a tire assembly plant at Los Angeles, California. The Firestone Tire and Rubber Company and the B. F. Goodrich Company established branch plants in the Los Angeles area in 1927 and 1928, respectively. The Pacific Coast area was becoming a market of sufficient size to allow economical operation there of large rubber plants and direct shipment of crude rubber was cheaper. In 1929 the Goodyear Company built a plant at Gadsden, Alabama, to meet the demands of the Sears Roebuck and Company for a plant to serve its southern market.

*Continued Concentration during the Depression Years, 1930 to 1935*

During the depression years, 1930 to 1935, Akron maintained a proportional share of the total rubber industry comparable to the preceding period. The rubber companies in the Akron area had secured the advantages of concentration by 1929, and as a result were in the best financial position when demand declined with the world-wide depression in the 1930's. They were financially able to sustain losses from operations below capacity and large frozen inventories. Other companies were not so fortunate because of less favorable locations and less efficient scale of operations. The result was the continued concentration of rubber manufacturing in the Akron area without much change in locational factors between 1929 and 1935. The major factories tending toward decentralization were not effective until the markets began to increase in 1936.

*Decentralization of the Akron Rubber Industry, 1936 to 1939*

The greatest movement in rubber manufacturing from the Akron area occurred after 1935 following the renewed growth in demand. In 1935 the Akron area had approximately 30 percent of the total number of production workers in the rubber industry, but by 1939 it had a smaller proportion of workers than at any time in the preceding 15 years (table 1). In 1939, Akron's share of the production workers had dropped to 25.3 percent, a loss of nearly 5 percent in four years.

This loss of rubber manufacturing resulted from the erection of new branch plants and from the increase in output of existing branch factories. Many branch plants were established by the Akron rubber companies after 1935 (table 3). The Goodyear Company constructed a tire factory at Jackson, Michigan, in 1937, and expanded capacity at its Gadsden and Cumberland plants. The Firestone Company erected a new plant in Memphis, Tennessee, in 1937; and the B. F. Goodrich Company built a new tire plant at Oaks, Pennsylvania, in the same year.

After 1935 the Akron tire companies began to move their production of mechanical and other rubber products to new locations outside of Akron. The production of these items requires less skilled labor than tire production, value of output is lower, and a larger proportion of the total costs of these products than tires, it appears that the movement was to areas of lower labor costs. All the major tire companies in Akron established plants and facilities elsewhere to produce mechanical and other rubber products after 1935 (table 3). The movement of this type of production was so substantial that by 1938 B. F. Goodrich was the only tire company producing a considerable proportion of nontire products in Akron. By 1954 the Akron area had only 7.7 percent of the total number of production workers engaged in manufacture of rubber products other than tires, and the output of rubber footwear was insignificant (table 1).

Various reasons for decentralization of the Akron rubber industry after 1935 have been noted in studies of the tire and tube industry. Gaffey (1940) suggests that the significant movement of the rubber industry was due to the unfavorable position of the Akron area with regard to labor costs and labor relations. He points out that wage rates in Akron area were 40 to 50 percent higher in 1938 than in other areas of the United States. The indications are that the Akron rubber companies put through these wage increases in an effort to halt the growth

of unionism. Gaffey further notes that the growth of the rubber worker's union in Akron has strengthened the tendency for the rubber industry to decentralize. In both the 1933-34 and the 1936-37 organizing campaigns, the greatest efforts of the union leaders were concentrated in the Akron area. Similarly, the Akron rubber companies were the most vigorous opponents of unionism. The result was a bitter labor-management struggle in which the union made considerable gains by 1938. Gaffey concludes that the concentration of union strength in Akron gives the rubber plants there an unfavorable competitive situation and this remains a factor favoring further decentralization. Although the above factors were important in the movement of the rubber industry out of the Akron area after 1935, it appears that decentralization had started before the labor struggles and the rise of unionism (table 3). The labor struggle merely increased the rate of an earlier trend.

Probably more significant than wage differentials and labor unions in affecting decentralization of the industry have been the technological developments and changes in market areas. Technological developments have offset the advantages of centralized mass production which affected the location of production until 1929. According to Akron rubber officials, scale of operation stopped growing about 1929 when the Banbury mixer came into general use. This machine sets the minimum economic scale of operation. These developments gave a small rubber plant advantages in process alignment, continuous flow of materials, groundfloor operations and mass production which allowed it to compete with plants having several times the capacity. Since 1935 the demand for rubber products has been growing continuously and market areas have developed in which local demand is adequate for the economical operation of a small but efficient plant. Since rubber manufacturing is essentially an assembly industry and is, therefore market oriented, branch plants of the Akron rubber companies have been established within individual market areas outside Akron in order to minimize transportation and other marketing costs.

#### *World War II Developments in the Akron Rubber Industry*

The period of World War II was one of major growth and change in the Akron rubber industry. Plant capacities and mass production techniques were converted to war-time productions. Unused plant facilities were adapted to the new production changes and plant expansions were made to meet the increasing demands of the military. Three synthetic rubber plants were built in the Akron area following the loss of our crude rubber sources in southeastern Asia. New rubber products and rubber derivatives were developed such as foam and sponge rubber, together with new trade-name products such as Koroseal, Pliofilm, and Vinyl. Chemical and plastic production has continued to the present time as one of the major trends in the diversification of the rubber industry.

During the war years, plant expansions outside the Akron area were based primarily on labor supply and government support. Important new plant expansions were made by: (1) Firestone at Pottstown, Pennsylvania, and Des Moines, Iowa; (2) Goodyear at Topeka, Kansas; (3) Goodrich at Miami, Oklahoma, and Tuscaloosa, Alabama, and ; (4) General at Waco, Texas (table 3). Although these plants were not located for the usual economic reasons, their establishment has affected the relative concentration of the rubber industry since the Akron companies bought them from the government at a price which allows profitable operation today.

Another major war change in the Akron industry was the tremendous expansion in the production of mechanical and rubber products other than tires. In 1939, 16 companies were manufacturing these products in the Akron area, but in 1947 the number had increased to 27. In the same period the number of production workers in the plants manufacturing these items increased from 1,700 to more

than 3,500, an increase of over 105 percent. This phase of the manufacture of rubber has continued as an important part of the rubber industry in the Akron area to the present time.

#### *Post-war Developments in the Akron Rubber Industry*

Following the close of World War II, peace time demands stimulated the market for tires, tubes, and other rubber products which were scarce during the war years. The Akron companies met the post-war demands by expanding their productive capacity in local and branch plants in operation at the end of the war. The rubber companies continued to operate at or near capacity through 1947 when supply finally began to exceed demand. As a result, total rubber employment in the Akron area dropped sharply. However, the outbreak of the Korean War stimulated a sharp increase in rubber production, and by 1951 employment had increased to near-peak levels.

More recent developments of the Akron rubber industry have been: (1) a continued decline in the relative concentration of rubber manufacturing due to the erection of branch plants and growth of competitive producing area; (2) an increasing trend in the diversification of production with emphasis on plastics and chemical derivatives, and; (3) a lessening of government control of rubber supplies and prices.

#### *Conclusions*

The Akron area was still the major center of the rubber industry in the United States in 1957. Although Akron's share of the nation's rubber production has continued to decline since 1929, the local rubber factories employed more than 17 percent of the total production workers and produced the major part of tire and tube output. In the production of rubber footwear, reclaimed rubber, and other rubber products, the Akron area has lost a considerable proportion of the total production. There is no evidence to show an absolute decline in rubber manufacturing in the Akron area, but the growth of the industry in other areas indicates an inevitable decline in the former concentration of the industry. This does not mean regression for the rubber industry in the Akron area but merely a change in its relative importance as the center of production within the United States.

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