THE BUSINESS REVIEW



FEDERAL RESERVE BANK OF PHILADELPHIA

FEBRUARY 1, 1944

Important and closely related changes in the industrial picture accompanied the expansion in munitions output continuing over the greater part of 1943. Major technical difficulties associated with the mass production of a wide range of unfamiliar items gave way to smaller scale problems of a specialized nature. This resulted in cutbacks for a growing number of items, a measure which was resorted to with increasing frequency as the year progressed.

While most of the early cancellations of contracts were due to changes in design of equipment, those made more recently have reflected in large part outright reductions in estimated requirements over the foreseeable future. Toward the close of the year supplies of steel and some of the non-ferrous metals began to exceed the demands of fabricators, and what had been a highly critical raw material situation eased sufficiently to permit increases in the output of railroad and agricultural equipment and the granting of permission to resume on a small scale the production of a few items of civilian goods using war metals. Although the manpower problem remains a critical element in the industrial situation, it also has eased somewhat, developing into one of local shortages, rather than persisting as an over-all scarcity of the magnitude envisioned a few months ago.

The significance of these changes lies first of all in the opportunity afforded munitions makers to concentrate their facilities, manpower, and materials on the production of items which will be required in much greater volume this year than in 1943. The other import of last year's developments on the industrial front is the improved outlook for increasing further the output of certain essential civilian goods, and possibly expanding the short list of items already in limited production by gradually reconverting the facilities of small manufacturers whose war orders have been cancelled or drastically reduced.

Although the War Production Board has emphasized in recent weeks that major reconversions are not contemplated, it appears that plans are being perfected which would permit firms employing a maximum of fifty workers in certain areas to use surplus supplies of metals for the unrestricted manufacture of civilian goods. The War Production Board districts of Philadelphia, Cleveland, and Kansas City are said to have been selected tentatively as proving grounds for this plan; its successful operation in these localities would permit its extension on a nation-wide basis.

The degree of manpower stringency, as indicated by War Manpower Commission groupings, will determine which producers will be authorized to participate in this planned undertaking. In addition to this limitation, prospective participants must establish to the satisfaction of the War Production Board that they have little or no war business; that the product which they propose to turn out is important in

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The Economy of The Third Federal Reserve District Manufacturing Industries

The economy of the Third Federal Reserve District is built upon a foundation of agriculture, mining, and manufacturing. Since we live on the products of our fields, mines, and factories, our material well-being is related intimately to the volume and quality of products derived from these sources. By intensive cultivation the agricultural resources are used to good advantage to supply the large urban markets of the district with specialized farm products. The mineral industries of the district, though somewhat less important today than formerly, still play a prominent part in its economy. Manufacturing, for which the district is particularly well adapted, is the keystone of its industrial structure.

As a cross-section of the major economic developments of the district, the survey is confined to agriculture, mining, and manufacturing. While it is recognized that other industries, such as trade, insurance, transportation, and finance perform indispensable functions, nevertheless the prosperity of these auxiliary industries is dependent very largely upon the primary industries that produce most of the essentials of life.

The Predominance of Manufacturing in the Industrial Pattern of the District

Manufacturing is the predominant economic activity of the district. In 1939 manufacturing industries employed almost 75 per cent of all employees in the primary industries of the district. In that year manufacturing employed about five times the number of workers engaged in agricultural pursuits and more than six times the number employed in the extraction of minerals.

The preeminence of manufacturing in the industrial pattern of the district is not a recent development. The foundation was being laid for it early in our history, but the most rapid growth occurred during the six decades following the Civil War. Manufacturing industries at the close of the nineteenth century employed about 62 per cent of all workers in the primary industries of the district. Agriculture at the same time provided employment for about 22 per cent and mining about 16 per cent of the workers in primary industries. During the forty

years between 1899 and 1939, manufacturing in the district grew faster relative to mining and agriculture, as shown in Table 1. While district manufacturing expanded from 62 to 74 per cent of the total, mining declined from 16 to 11 per cent, and agriculture declined from 22 to 15 per cent of all workers employed in the primary industries.

TABLE 1: PERCENTAGE DISTRIBUTION OF WORKERS EMPLOYED IN MANUFACTURING, MINING, AND AGRICULTURE

Third Federal Reserve District				United States					
Year	Mfg.	Mining	Agr.	Total	Mfg.	Mining	Agr.	Total	
1899	62	16	22	100	38	3	59	100	
1909	62	17	21	100	40	4	56	100	
1919	72	14	14	100	51	5	44	100	
1929	70	15	15	100	50	5	45	100	
1939	74	11	15	100	53	5	42	100	

Source: United States Department of Commerce, Bureau of the Census.

It is recognized that the use of number of workers employed is not a flawless measure of the changing relative importance of economic activities over a period of years. If manufacturing industries, for example, made greater progress relative to agriculture, in mechanizing their productive processes, the number of workers employed understates the rate of growth in manufacturing. Such in fact seems to be the case. In recent years technological improvements have occurred in both manufacturing and agriculture, but greater strides have been made in the field of manufacturing. The index of physical volume of production per wage earner in United States manufacturing increased from a base of 100 in 1899 to 199 in 1939. In agriculture, productivity per worker did not rise as much as in manufacturing. The output per farmer and per adult male laborer working on farms increased from a base of 100 in 1900 to only 154 in 1938.2

Among the primary industries, both manufacturing and mining play a more prominent part in the economy of the district than in the national economy. Relative to the total number em-

¹ United States Department of Commerce, Census of Manufactures, 1939. Vol. II, Part 1, p. 20.

² Barger, H., and Landsberg, H. H.—American Agriculture 1899-1939, National Bureau of Economic Research, New York, 1942, p. 251.

ployed in the primary industries, manufacturing expanded and agriculture contracted in both the district and the country between 1899 and 1939. This reflects a growing industrialization of both areas. The proportion of people employed in mining to all employees in the primary industries declined from 16 to 11 per cent in the district since the turn of the century. For the United States, the proportion of workers in mineral extraction to all workers in the primary industries increased. The divergent trends arise from the fact that mineral resources in the South and the West afforded greater opportunities for development owing to comparatively recent discoveries of rich mineral deposits. However, in 1939 mineral extraction continued to employ a larger proportion of workers engaged in the primary industries in this district than in the United States.

Types of Manufacturing in the Third Federal Reserve District

Manufacturing in this district is highly diversified. The principal industries in Philadelphia, the largest manufacturing center of the district, are clothing, textiles, food processing, iron and steel, printing, chemicals, and machinery products. Among the principal industries in nearby areas of Pennsylvania are petroleum refining, textiles, cement manufacturing, iron and steel, transportation equipment, electrical machinery, and food processing.

The southern half of New Jersey and the state of Delaware add considerable variety to the industrial pattern of the Third District. The outstanding manufactures of southern New Jersey are metal products, electrical machinery, textiles and clothing, clay and glass manufactures, chemicals and transportation equipment. The

TABLE 2: MANUFACTURING INDUSTRIES OF PENNSYLVANIA — 1939

Major Industrial Groups	Number of wage earners	Per cent or total
Metal products	242,062	28.2
Textiles and clothing	234,989	27.4
Machinery	65,769	7.7
Food products	61,586	7.2
Stone, clay, and glass products	45,064	5.3 7
Printing	28,906	3.4 %
Transportation equipment	27,971	3.3
Leather and leather products	27,874	3.2 70
Chemicals and allied products	23,574	2.7 %
Paper	21,676	2.5
Products of petroleum and coal	14.613	1.7
Lumber products	12,253	1.4
Furniture	11,534	1.3
Other manufactures	40,431	4.7
Total	858,302	100.0

Source: Census of Manufactures, 1939.

principal industries of Delaware are chemicals, leather tanning, and iron and steel manufacturing.

The diversification of manufacturing in the district is indicated by the variety of Pennsylvania³ industries shown in Table 2. It is apparent that the district has a wide range of industries which is an element of strength in its industrial structure. It should also be noted that textiles and clothing occupy a very prominent position. These industries employ 27 per cent of all factory workers, thus contributing a considerable measure of stability of income in this district owing to the constancy of demand for textiles and apparel.

Origin and Development of Manufacturing Prior to 1900

The origin and growth of manufacturing in Pennsylvania is closely associated with the development of manufactures in Philadelphia, its leading manufacturing center today. Manufacturing in Philadelphia began almost immediately following its settlement. Philadelphia manufacturers produced coarse woolen fabrics that were superior to any like cloth made in other parts of the world. Leather tanning was likewise a prominent industry in the Delaware River valley. A thriving shipbuilding industry fostered the development of Philadelphia's foreign commerce for which the city was favorably located. For the first hundred years or more the growth of Philadelphia, like that of other Colonial cities, was stimulated more by its foreign trade than its manufactures. In 1793, exports from Philadelphia were more than one-fourth of the total exports of the country.

The early development of Philadelphia as a commercial city laid the foundation for its rise as a center of manufacturing. From its flourishing commerce was accumulated the necessary capital to establish manufactures. Another factor contributing to the rise of manufacturing was the character of its early settlers. In the wake of the Quakers who were keen merchants, came the Germans, Dutch, English, and Scotch-Irish. These people were skilled in the industrial arts, for they migrated from countries noted in the eighteenth century for weaving, spinning, and kindred crafts.

³ County data are required to portray the types of manufacturing in the Third Federal Reserve District. Pennsylvania data are used because the Census does not report this information by counties. Since 70 per cent of the factory workers of Pennsylvania are employed within the Third District, the industries of the state are substantially representative of the industries of the district, except for iron and steel manufacturing so heavily localized in the Pittsburgh area.

Philadelphia in 1810 had more manufacturing establishments and produced a greater variety of manufactured products than any other city in the country. In that year Philadelphia manufactures represented 36 per cent of the value of manufactures produced in Pennsylvania. This indicates not only the importance of Philadelphia as a manufacturing center, but also the extent to which manufacturing had spread to other parts of the state.

According to the Census of 1810, the total value of United States manufactures was \$128 million. Of this, Pennsylvania, already the leading industrial state, contributed \$32 million, or about 25 per cent. Pennsylvania produced almost twice the output of Massachusetts, which ranked second. The large cities did not afford, necessarily, the best factory location. When the scene of manufacturing shifted from the household to the mill or factory, largely as a result of technological changes, power became an important factor influencing location, and before the age of steam, natural water power sites played a prominent part. These sites seldom coincided with large metropolitan centers founded upon commercial development; hence the growth of rural manufacturing centers remote from the principal cities.

Between 1830 and 1840, while New England manufacturers were debating the relative merits of water power and steam power for textile mill operation, many Pennsylvania manufacturers already had converted to steam power. Meanwhile the introduction of hot blasts and mineral fuel strengthened the position of iron manufacturing in which Pennsylvania was already the leading state.

Pennsylvania retained its position as the leading industrial state throughout the first half of the nineteenth century. However, manufacturing developed so rapidly along the North Atlantic seaboard that by 1861 New York displaced Pennsylvania as the foremost manufacturing state in terms of gross value of products manufactured. In 1855 appeared an epoch-making invention that was destined to have farreaching effects upon the economic development of this area and the entire United States. The Bessemer steel-making process gave us our first cheap steel, which prepared the way for the great railroad expansion during the second half of the century.

The consequent opening up of the West immediately afforded larger markets for the products of eastern manufacturing industries but it was not long before eastern industries had to compete with rising manufactures in the states bordering the Great Lakes. Rich mineral and agricultural resources furnished the raw materials, and continued westward migration afforded expanding local markets for the new manufacturing industries of the area west of the Alleghenies. As a result of these developments, Pennsylvania, like other industrialized states of the East, could not maintain its former industrial supremacy. The relative decline of Pennsylvania as an industrial state is therefore the result of the industrialization of the United States which made rapid strides following the Civil War, and has continued to this day.

District Manufacturing Declines Relative to United States Manufacturing

Manufacturing in the Third District manifested the same over-all trend during the forty years since 1899 that prevailed for some years prior to that year. In other words, district manufacturing expanded but not as rapidly as the rate of growth of United States manufacturing. In 1899 the district produced 10.2 per cent of total United States value added by manufacture and employed 11.2 per cent of the factory wage earners. By 1939 its proportion of value added by manufacture had declined to 8.1 per cent, and the proportion of wage earners in manufacturing had dropped to 9.0 per cent. The contraction of district manufacturing relative to United States manufacturing as shown in Table 3. was not uniform from decade to decade, but the evidence is unmistakable that the forces making for geographic dispersion of industry, which began more than three quarters of a century ago, have persisted down to the outbreak of the Second World War.

TABLE 3: MANUFACTURING IN THE THIRD DISTRICT
—EXPRESSED AS A PERCENTAGE OF THE
UNITED STATES

Year	Value added	Wage earners
1899	10.2%	11.2% 10.5
1909	9.0	10.5
1919	9.4	10.2
1929	8.4	9.2
1933	8.7	9.8
1939	8.1	9.0

Source: United States Department of Commerce, Census of Manufactures. The inevitable consequence of the growing industrialization of the United States is a contraction in the relative importance of manufacturing in this region.

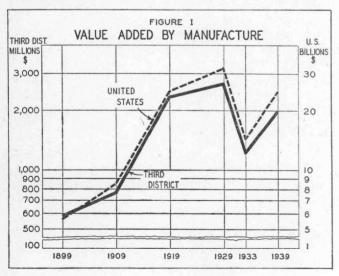
Trends of Production

During the four decades preceding the Second World War, manufacturing in the Third Federal Reserve District expanded rapidly, but its rate of growth was somewhat less than that of United States manufacturing. Measured by value added, manufacturing in the district increased from \$580 million in 1899 to \$1,994 million in 1939, an increase of 244 per cent. During the same period the value added of United States manufacturing rose from \$5,678 million to \$24,683 million, a gain of 335 per cent.

Obviously, the real growth of manufacturing was somewhat less than the rate shown by these data of value added because they are exaggerated by the generally rising price level. A more accurate portrayal of actual growth is the increment in physical volume of output. As reported by the Census Bureau,⁴ physical volume of United States manufacturing shows an increase of 273 per cent between 1899 and 1939. This represents an annual rate of growth of approximately 3.5 per cent.

Although the trend of manufacturing in this district roughly parallels the trend of United States manufacturing, as shown in Figure I, significant differences are apparent in the changes from one decade to another. These

⁴ U. S. Department of Commerce, Bureau of the Census, Manufactures Volume I, 1940.



differences stand out sharply when reduced to percentage changes as shown in Table 4.

TABLE 4: VALUE ADDED BY MANUFACTURE, AMOUNT AND RATE OF CHANGE

	Third 1	District	United	States
Year	Value added	Per cent	Value added	Per cent
	(millions)	change	(millions)	change
1899 1909 1919	\$ 580 772* 2,354	+ 33 +205	\$ 5,678 8,529 25,042	+ 50 +194
1929	2,683	+ 14	31,885	+ 27
1933	1,268	- 53	14,538	- 54
1939	1,994	+ 57	24,683	+ 70

* Estimated. Source: U. S. Census of Manufactures.

During the first decade of the present century, manufacturing in the district increased 33 per cent in contrast to a 50 per cent increase in value added by all industries of the United States. The rapid growth of manufacturing in the country coincided with the rising tide of business activity that prevailed throughout most of this decade.

Fundamental factors that contributed to the rapid expansion of manufacturing were the development of new products, the discovery of new raw materials, the recovery of waste products, the transformation of industrial equipment, changes in the form of industrial organization, and the diversification of domestic demand. The beginning of the century approximately marks the time when our exports of agricultural products, except for cotton and tobacco, began to decline, and our energies were turned more toward converting our raw materials into manufactured products for domestic consumption. At this time also organized industry was assuming more and more of the functions formerly performed in the home. Industries manufacturing capital equipment and durable goods, though still relatively small, had considerable influence in setting the pace during this period.

Manufacturing in this district participated in the general industrial expansion but not to the same degree as industry in the United States as a whole. A number of the industries in their early stages of growth such as automobile manufacturing, canning, sugar beet refining, petroleum refining, and other branches of chemical manufacturing, developed in areas outside of the district where proximity to raw materials or nearness to complementary industries played an important part in their development.

Manufacturing activity during the second decade—from 1909 to 1919—was influenced more than anything else by the First World War. That war, like the present one, found the industry in this district highly capable of quick conversion from production for peace to production for war. Largely for this reason, manufacturing activity here expanded more rapidly than that throughout the country. Between 1909 and 1919 value added by manufacturing in the district increased 205 per cent, in contrast to an increase of 194 per cent in output for the country.

The war created an enormous demand for steel and the fabricated products of steel, such as ships, machinery, ordnance, armor plate, etc. This district profited by its extensive facilities for manufacturing steel products and especially the heavy steel products: castings, forgings, plate and armor steel, heavy ordnance, turbines, and related marine equipment. Another factor that gave considerable stimulus to manufacturing in this district was the heavy reliance placed upon facilities existing at the outbreak of the war. This district, therefore, benefited by reason of its manufacturing capacity and particularly its capacity to produce those goods in greatest demand at that time.

The decade from 1919 to 1929 is characterized by an unusually high rate of industrial activity after the short post-war business readjustment in 1920-21. Value added by manufacturing industries of the United States attained an all-time peak of almost \$32 billion, which was 27 per cent above the value added in 1919. Production by the manufacturing industries of the district increased 14 per cent during this period—about half the rate of growth of manufactures of the United States.

The slower rate of growth of manufacturing in the district during the decade of the 'twenties was due, in part, to the inevitable adjustments following the First World War. Numerous industries of the district that had prospered to an unusual degree during the war period declined precipitously after the war. Conspicuous in this group was the shipbuilding industry. After the war this industry virtually collapsed, and as a consequence, demand was seriously impaired for the products of those industries closely allied with shipbuilding, such as the manufacture of structural steel, castings, forgings, propulsion machinery, marine hardware, and electrical equipment.

Another factor that affected this district adversely was the pronounced change that occurred in American habits of consumption. During the 'twenties the demand for consumer goods of durable and semi-durable character increased faster than the demand for non-durable goods. The physical volume of production of such goods as automobiles, furniture, floor coverings, and household electrical appliances increased at an annual rate of 6.3 per cent between 1922 and 1929.5 For the same period the physical volume of production of foods and textiles increased respectively at annual rates of only 1.6 and 2.2 per cent.6 In view of the prominent part that textile manufacturing plays in the Third District, the lagging demand for textiles was partly responsible for the slower rate of growth of district manufactures during this period.

The severe business depression that began in 1929 affected manufacturing in this district with about the same degree of adversity as the industry in the country generally. Between 1929 and 1933 value added by manufacture in the district declined 53 per cent in comparison with a 54 per cent decrease in all manufacturing industries of the United States. The non-durable consumer goods industries, such as food, tobacco, textiles, clothing, leather, and shoe manufacturing, put a floor under the depression because the products of these enterprises are currently consumed and require constant replacement. Since industries of this class make up a substantial proportion of district manufacturing, the recession of the district was no more severe than that of the country.

During the six years of industrial recovery from 1933 to 1939 the output of manufactures in the district increased 57 per cent, in contrast to an increase of 70 per cent by the industries of the United States. The slower recovery of manufacturing here is again a reflection of the characteristic behavior of the industries so prominent in this area. Demand for non-durable consumer goods is not as responsive as demand for durable or capital goods during a period of recovery.

Trend of Employment

Employment in the Third Federal Reserve District, like value added, reflects the more advanced stage of industrialization of this region in contrast to manufacturing in the country. In 1899 the manufacturing industries of the district employed 595 thousand factory wage earn-

⁸ Mills, Frederick C., Economic Tendencies in the United States—National Bureau of Economic Research Publication No. 21, p. 274.

⁶ Ibid., pp. 270, 272.

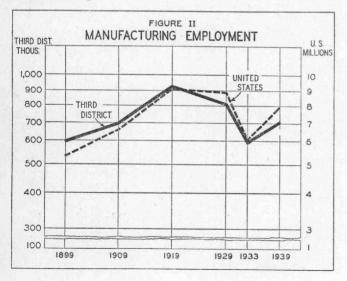
ers; forty years later they employed 707 thousand workers, as shown in Table 5. This represents an increase of 19 per cent. Employment in the manufacturing industries of the United States increased from 5,321 thousand in 1899 to 7,887 thousand in 1939, an increase of 48 per cent.

TABLE 5: MANUFACTURING WAGE EARNERS, NUMBER AND RATE OF CHANGE

Year	Third 1	District	United States		
rear	No. employed (000 omitted)	Per cent change	No. employed (000 omitted)	Per cent change	
1899 1909 1919 1929 1933 1939	593	+17 +33 -12 -27 +19	5,321 6,615 9,096 8,839 6,056 7,887	+24 +38 - 3 -32 +30	

^{*} Estimate. Source: U. S. Department of Commerce, Bureau of the Censu

The long-run expansion of employment in district manufacturing was rather consistently below the growth of employment in national manufacturing. During the first 20 years of the present century, manufacturing employed an increasing number of workers in both areas, but the rate of increase was less pronounced in the district, as shown by the milder slope of the curve in Figure II. From 1919 to 1929 employment both here and in the country declined but the decline of employment in the district was relatively greater than that of United States manufacturing. During the depression years from 1929 to 1933, the recession of employment in the district was relatively less than that of United States manufactures but in the subsequent years of recovery-1933 to 1939-employment in district manufacturing again rose more slowly.



Relation Between Employment and Production

It is significant to note a considerable divergence between the trend of employment and the growth in production which is revealed by a comparison of Figures I and II.7 Between 1899 and 1939 output of manufacturing industries of the district increased 244 per cent but the number of employees engaged in manufacturing increased only 19 per cent during the same period. Similarly, output in manufacturing of the United States increased 335 per cent during this period in contrast to an increase of only 48 per cent in employment. Not all of the disparity between employment and output trends is accounted for by inflated dollar values of output; some of it is due to increased productivity of labor as a result of the mechanization of manufacturing processes.

Prior to 1919 changes in number of employees engaged in manufacturing probably reflect changes in physical volume of output with reasonable accuracy. However, after 1919, as Figure II shows, the number of manufacturing employees of both the district and the country declined, despite the continued expansion in volume of output. The greatest strides in industrial mechanization were made in the two decades after the First World War, a fact corroborated by the Census Bureau's estimates of changes in productivity per wage earner. Using 1899 as a base of 100, productivity per worker rose moderately to 116 in 1919 but then increased sharply to 199 in 1939. The greatest gains in productivity occurred after 1919.

The period between 1919 and 1939 was one of widespread innovations in technology. The steel industry introduced continuous rolling which effected considerable savings in the manufacture of sheet and strip steel. Foundries cut down labor requirements through the use of die casting and centrifugal pipe casting. In the metal fabricating industries labor costs were greatly reduced by the standardization of parts, serialized arrangement of machinery and power driven intra-plant conveyors. Thermal and catalytic cracking replaced straight-run refining in the petroleum industry. Machine-made cigars all but displaced hand-made cigars. The glass container industry was revolutionized by the appearance of automatic bottlemaking machinery. These and other improvements contributed very largely to the increasing productivity of labor in manufacturing industries.

⁷ These are ratio charts. Equal vertical distances represent equal percentage increases or decreases; therefore rates of change are emphasized.

The adoption of technological improvements by manufacturers in this district is reflected in the rising productivity of its factory workers. Productivity as measured by value added per wage earner increased almost threefold between 1899 and 1939. Value added per wage earner in the country as a whole increased at substantially the same rate.

Throughout the entire period from 1899 to 1939 the value added per wage earner was uniformly lower in this district than that in the country generally. This is due chiefly to the relatively larger proportion of textile and apparel manufacturing in this district. The value added per worker is characteristically lower in these industries than in manufacturing as a whole.

During the forty-year period preceding the outbreak of the Second World War manufacturing in the Third Federal Reserve District, on the whole, paralleled the development of manufacturing in the United States. It was a period characterized by a growing population, the rise of new industries, the development of large-scale production, exploitation of natural resources, the appearance of new products, and the widening of markets. These developments

were primarily responsible for the growth of American manufacturing throughout the greater part of the period.

As an integral part of the national economy, activity in the Third District was stimulated by the same forces that contributed to the growth of national manufacturing. The fact that manufacturing in this district did not maintain the same rate of growth as prevailed in the country is no indication of industrial stagnation. The slower rate of growth is primarily a reflection of a more advanced stage of industrial development.

The highly industrialized economy of the Third Federal Reserve District was a national asset of inestimable value at the outbreak of the Second World War. The district had available for immediate conversion to the war effort a variety of industrial resources. Its facilities were not on order—they were on hand. They consisted of established, operating industries that supplied some of our most pressing needs when we were forced into total war. This contribution of the district to national defense and the effect of the war upon its industries will be the subject of subsequent analyses.

Business and Banking

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the civilian economy; and that they can use surplus metals in their present state, or after processing with their own facilities.

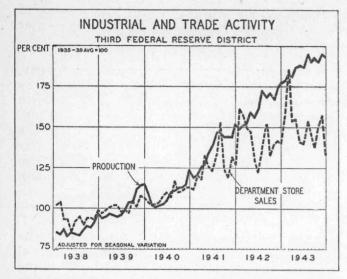
The value of this small beginning for total reconversion after the war ends lies in the fact that its successful operation, particularly if in the interim it became nation-wide in scope, might furnish the pattern for the unprecedented undertaking facing industry at some future date. Moreover, the very existence of the program constitutes tangible proof that the War Production Board intends that reconversion be a systematically planned and well-regulated return to peacetime production, rather than a chaotic readjustment.

Industry and trade. Industrial production in the Philadelphia Federal Reserve District in 1943 averaged 16 per cent higher than in the preceding year, reflecting chiefly a sharp expansion at manufacturing plants turning out munitions and other heavy war goods. Output of coal was in about the same volume as in 1942, but the production of crude petroleum showed a substantial decline.

Operations at factories producing durable goods expanded 27 per cent in 1943, as against a rise of only 2 per cent at establishments making lighter products. The sharpest increase in heavy goods lines—51 per cent—was reported by manufacturers of transportation equipment. Increases in non-durable goods lines were substantial in the case of certain food and chemical products. Material and labor shortages were chiefly responsible for a lower level of output in the textile and leather products industries.

Factory employment, payrolls, and working time in Pennsylvania were maintained at near-record levels in December. The number of wage earners fluctuated narrowly a little above 11/4

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million over most of 1943, with the average for the twelve months only 5 per cent higher than a year earlier. Substantial additions to the working forces in heavy industries were partly offset by reductions at plants manufacturing nondurables, chiefly for civilian use. Factory payrolls showed an almost uninterrupted rise in 1943 to a peak of approximately \$55 million a week. For the year as a whole they were more than one-fifth above the average for 1942. Total employee-hours worked increased moderately, averaging about 10 per cent more in 1943 than a year earlier.

The weekly income of wage earners at reporting plants in Pennsylvania advanced last year from an average of \$42 in January to above \$46 in December, continuing a pronounced upward trend that began more than three years ago with the inception of our defense and war production program. Average hourly earnings also have been rising with few interruptions since about the middle of 1940. Working time per employee increased from an average of about $43\frac{1}{2}$ hours a week at the beginning of 1943 to $45\frac{1}{2}$ in the closing month of the year.

The supply of coal for heating purposes remains tight, necessitating the continued diversion of small quantities of industrial fuels to meet emergency requirements. Reserves at manufacturing plants have decreased somewhat, particularly in the case of certain steam sizes usually carried in stockpiles by producers of primary iron and steel products. Repeated shutdowns in both the anthracite and bituminous coal fields during 1943 offset pro-

duction gains that might have been expected as a result of the longer work-teek adopted very early in the year. In the two live months ended last December, output of an hracite was about the same as in 1942 but approximately 5 million tons short of estimated requirements. The production of bituminous coal in Pennsylvania decreased slightly in 1943.

With the greater part of military installations, plant facilities, and war housing projects completed some months ago, operations in the construction industry have continued to decline, releasing manpower, materials and productive capacity for use in other fields. Further reductions in activity are in prospect during the present quarter on the basis of the small volume of new contracts awarded in the closing months of 1943.

In this district, awards of building contracts declined 60 per cent last year from a peak of well over \$400 million in 1942. Moreover, pronounced changes occurred in the type of structures covered in new contracts. As the need of living quarters for workers increased sharply with the completion of munitions-making facilities and other war essential projects, emphasis shifted to residential building, with contracts in this classification accounting for over one-third of the dollar volume of all awards, as against less than one-fifth in 1942. Contracts for dwelling units showed a decrease of only 19 per cent last year, compared with declines of 68 and 76 per cent respectively in the case of factory buildings and public works and utilities.

Shipments of commodities by rail in this district, as in the country, increased to new high levels last year, although the number of cars used to transport the record volume of wartime freight was approximately the same as in 1942. Peak performance of the railroads in 1943 with scant additions to rolling stock reflected continuing improvements in car utilization, including heavier loadings per car, more direct routing of shipments, and reductions in turn-around time. According to the Association of American Railroads, freight traffic in the twelve months ended December expanded nearly 14 per cent to an estimated 725 billion revenue ton miles.

Primary distribution by wholesalers in this district also continued to expand in 1943, when the value of sales in eight reporting branches was about one-tenth greater than in the pre-

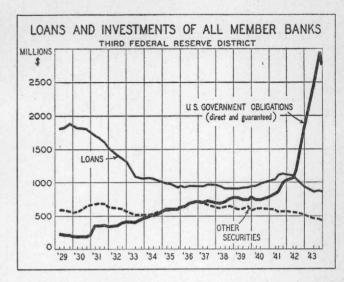
ceding year. Increases over the twelve months occurred in all lines but hardware, jewelry, and paper. Larger dollar sales than in 1942 reflected principally the influence of higher prices, and in most cases were associated with substantial declines in inventories.

Continued expansion in consumer buying raised the dollar volume of retail sales in the majority of reporting lines to new high levels in 1943. At department stores in this district the value of sales was 6 per cent greater than in the preceding year. Demand for women's apparel remained exceptionally heavy, with sales by stores specializing in these lines averaging about one-fifth more than in 1942. Business at men's apparel stores also was somewhat more active last year, but at shoe stores the limitations imposed by rationing were reflected in a slight decline in sales. Unusually large consumer purchases, in some cases continuing over many months, together with the growing difficulty of obtaining new merchandise, have substantially reduced retail inventories.

Banking conditions. At the opening of the Fourth War Loan Drive on January 18 a large volume of funds was available for investment in Government securities. Customers' bank deposits were at high levels, much currency was in the hands of the public, and civilian incomes, taken as a whole, were substantially in excess of current expenditures.

In this district deposits of individuals and business concerns at the weekly reporting banks, most of which are in Philadelphia, stood at \$1.9 billion on January 19, approximating closely the record high reached just before the Third Drive. These balances have expanded over one-quarter billion dollars in the past year. The gain in deposits at the country member banks in this district during 1943 appears to have been even larger than that of the city institutions. Individuals, business houses, banks, and others bought heavily of the securities offered by the Treasury last year, but the funds turned over to the Treasury in payment returned in large measure as they were spent for war supplies.

Member banks entered 1944 with \$2\%4 billion of Government securities, an investment which was nearly four times as large as at the outbreak of war in Europe; two-thirds of earning assets were in this form, as against one-third in June 1939 and only 7 per cent at the close of 1929.



Gains during 1943 were sharp at both country and city banks, although holdings of the latter declined in the closing months, when heavy drafts were being made upon war loan accounts. Loans at Philadelphia banks have been well sustained recently at levels somewhat above pre-war, but at country banks are the lowest in many years. Investments in securities other than Governments have continued to shrink.

The fully invested position of the city banks, taken as a whole, is indicated by the fact that in late months reserves have been only a few per cent above requirements. Excess reserves have declined at the country banks also, but in the first half of January reserves still averaged 26 per cent above requirements. Three years earlier reserves of all member banks in the district were more than double requirements.

Reports for the period December 22 to January 19 show an increase of \$38 million in reserves to \$653 million. Net disbursements of the Treasury reached \$120 million in the period, but \$90 million of this reflected the retirement at maturity of bills held by the Reserve Bank under the repurchase option. The total so held declined \$103 million to \$170 million. The increase from only \$6 million a year ago is an indication of the increased pressure on reserve positions resulting partly from active currency demand and payments to the Treasury. Note circulation of the Bank increased \$300 million in the year. In contrast with the relatively active use of Treasury bills for the adjustment of reserve positions, discounts have been little used. The largest volume of bills discounted on the books of the Reserve Bank in the year was less than \$12 million.

BUSINESS STATISTICS

Production

Philadelphia Federal Reserve District

	Adj	usted	for se	eason	al varia	tion	Not	adju	sted
				Per	cent ch	ange	70		
Indexes: 1923-5=100	Dec. 1943	Nov. 1943	Dec. 1942		1943 om	1943 from 12	Dec. 1943	Nov. 1943	Dec. 1942
	1943	1943	1942	Mo.	Year ago	mos. 1942	1943	1945	1942
INDUSTRIAL PRODUCTION	157p	158	145r	- 1	+ 8	+ 16	155p	159	143r
MANUFACTURING	162p	165	149	- 2	+ 9	+ 18	161p	166	147r
Durable goods	260p	272	234r	- 4	+ 11	+ 27			
Consumers' goods	94p	91	93 r	+ 4	+ 2	+ 2			
Metal products. Textile products. Transportation equipment. Food products. Tobacco and products. Building materials. Chemicals and products. Leather and products. Paper and printing.	189 70p 717 123p 123 39p 165 108p 95	182 69 798 120 89 38 166 109 97r	176 r 72 586 104 141 55 143 115 94	$ \begin{array}{r} + 4 \\ + 2 \\ -10 \\ + 2 \\ + 38 \\ + 4 \\ - 1 \\ - 1 \\ - 1 \end{array} $	+ 7 - 3 + 22 + 18 - 12 - 29 + 15 - 6 + 1	+ 12 - 2 + 51 + 13 - 11 - 23 + 15 - 7 + 3	181 70p 740 122p 89 37p 163 102p 96	183 70 787 122 106 38 166 r 104 97	168r 71 606 102 102 50 141 108 95
Individual lines									
Pig iron. Stoel. Silk manufactures. Woolens and worsteds. Cotton products. Garpets and rugs. Hosiery. Underwear. Gement. Brick. Lumber and products. Bread and bakery products. Slaughtering, meat packing. Sugar refining. Canning and preserving. Gigars. Paper and wood pulp. Printing and publishing. Shoes. Leather, goat and kid. Paints and varnishes. Coke, by-product.	105 146 87 59p 36 51p 77 152 36p 56 32 119 174 153p 122 85 97 133 44p 101 160p 75	88 85r 99 123 95 97 165 65	105r 140 82 63 58 55 83 160 84 71r 30 112 112r 140 82 97 151 81 93 165	0 +20 +10 -22 +6 +14 -1 +5 +3 +40 -2 +48 +30 -2 +48 +30 -2 +48 +30 -2 +48 +30 -2 +40 -40 -40 -40 -40 -40 -40 -40 -40 -40 -	+ 15 + 56 + 36 - 13 + 4 + 1 - 12 + 4 + 8 - 3 + 9	+ 7 + 50 + 28 - 11 0 + 3 - 6 - 7 + 6 + 2	129 113 159p 88 86 98 113 91p 98 155p 75	105 85r 100 116 92 100 159 66	104r 131 84 60 62 55 80 158 69 113 112 73 113r 101 83 98 128 88 90 160
Anthracite	72 95	64 74	66 r 88 r		+ 9 + 8	- 2	72 100	64 81	66r 92r
CRUDE OIL	394	380	459	+ 4	- 14	- 12	371	369	432
ELEC. POWER—OUTPUT	403	407	373	- 1	+ 8	+ 11	431	423	399
Sales, total	443 379	444 370	381 310	+ 2	+ 16 + 23	+ 15 + 21	456 360	458 378	39 2 29 4
BUILDING CONTRACTS				10					
TOTAL AWARDS†	44	44	183	- 1	- 76	- 44	48	48	203
Residential† Nonresidential† Public works and utilities†	37 57 43	34 53 56	60 234 426	+ 8 + 8 -23	- 38 - 75 - 90	- 8 - 54 - 52	36 62 52	38 53 65	58 252 511

Local Business Conditions*

Percentage change— December	Employment		loyment Payrolls		Building permits value		Retail Sales		Debits	
1943 from month and year ago	Nov. 1943	Dec. 1942	Nov. 1943	Dec. 1942	Nov. 1943	Dec. 1942	Nov. 1943	Dec. 1942	Nov. 1943	Dec. 1942
Alleatown Altoona Harrisburg Johnstown Lancaster Philadelphia Reading Scranton Trenton Wilkes-Barre Williamsport Wilmington York	- 1 + 1 - 1 - 1 + 4 - 1 - 1	- 4 + 8 - 3 - 6 +13 + 5 - 3 + 20 - 5 + 1 + 8	- 2 + 3 + 1 + 1 - 2 - 3 + 6 + 1 - 2	+11 +15 +6 +20 +22 +17 +7 +32 -18 +8 +26	+140 + 18 - 58 - 82 + 39 - 50 + 7 - 17 +122 - 16 - 29 - 66	+536 +100 + 92 - 75 - 45 - 45 +176 +347 +257 + 49 - 30	+28 +33 +34 +30 +25 +21 +34 +45 +33 +44 +40 +39	- 5 + 6 + 5 + 2 - 6 + 2 + 10 + 2 + 11 	+13 +12 +28 +12 +9 +22 +17 +20 +23 +9 +49 +25	+18 + 9 +10 + 7 +18 +14 +12 +15 + 1 +22 -14 + 2

^{*} Area not restricted to the corporate limits of cities given here.

Employment and Income

in Pennsylvania

Industry, Trade and Service

	Em	ploym	ent	Payrolls			
Indexes: 1932 = 100		Per chang	cent e from			cent e from	
	1943 index	Nov. 1943	Dec. 1942	1943 index	chang	Dec. 1942	
GENERAL INDEX. Manufacturing. Anthracite mining. Bituminous coal mining. Building and construction. Quar. and nonmet. mining. Crude petroleum prod. Public utilities Retail trade. Wholesale trade. Hotels. Laundries Laundries Dyeing and cleaning.	81 46 92 135 99 147 105	+ 2 0 + 1 0 - 7 - 2 - 2 0 + 16 - 1 + 1 - 2 - 2	0 + 2 - 18 - 12 - 7 - 18 - 4 - 2 - 1 - 7 + 5 - 9	333 497 69 364 114 293 224 139 184 146 162 158 152	- 1 +72 +82 - 5 - 1 - 3 - 1	+10 +13 -21 +12 0 -11 +12 + 7 - 4 + 2 +11 - 3	

Manufacturing

	Em	ploym	ent*	Payrolls*			
Indexes: 1923-5=100	Dec. 1943	Per chang			Perchang		
	index	Nov. 1943	Dec. 1942	1943 index	Per change Nov. 1943 - 1	Dec. 1942	
TOTAL. Iron, steel and products. Iron, steel and products. Transportation equipment. Textiles and clothing. Textiles. Clothing. Food products. Stone, clay and glass. Lumber products. Chemicals and products. Leather and products. Paper and printing. Printing. Others:	177 83 76 111 124 90	0 0 0 0 - 1 0 0 0 0 - 1 - 2 0 0 0 0 0	+ 2 + 2 0 +16 - 6 - 6 + 5 - 4 - 2 + 4 - 17 + 2 + 1	203 276 414 311 122 114 165 183 134 80 211 113 147 129	$ \begin{array}{r} -2 \\ -1 \\ -1 \\ 0 \\ +1 \\ +2 \\ -2 \\ 0 \end{array} $	+13 +13 +13 +24 + 4 + 6 +19 + 7 +11 +15 -12 + 9 + 8	
Cigars and tobacco Rubber tires, goods Musical instruments	151	- 1 + 2 + 2	-15 + 27 + 27	81 293 185	- 1 + 2 + 2	- 7 +45 +49	

^{*} Figures from 2892 plants.

' Hours and Wages

Factory workers Averages December 1943	Wee work tim	ing	Hou earni		Weekly earnings†		
and per cent change from year ago	Average hours	Ch'ge	Aver-	Ch'ge	Aver- age	Ch'ge	
TOTAL. Iron, steel and prods Nonfer. metal prods Transportation equip. Textiles and clothing. Toxtiles. Clothing. Food products. Stone, clay and glass Lumber products. Chemicals and prods. Leather and products. Paper and printing. Printing. Others: Cigars and tobacco. Rubber tires, goods.	45.2 46.2 45.8 48.4 40.0 37.6 44.1 40.4 44.9 40.4 43.3 40.2	+ 3 + 4 + 3 0 0 + 1 + 2 + 5 + 1 + 7 + 2 + 2 + 3		+ 5 + 7 + 6 + 10 + 9 + 12 + 11 + 6 + 11 + 4 + 8 + 4	\$46.17 50.35 44.77 57.21 29.48 31.30 25.74 35.26 36.74 32.80 46.08 29.12 38.07 41.44	+10 + 9 +11 + 6 +11 +12 +15 +11 +12 +11 +7 +6 +6 +9	
Musical instruments.	49.0	+ 3		+14	43.04 48.49	+14	

^{*} Unadjusted for seasonal variation.
† 3-month moving daily average centered at 3rd month.

p—Preliminary.
r—Revised.

^{*} Figures from 2742 plants. † Figures from 2892 plants.

Distribution and Prices

	Per c	ent cha	auge	
Wholesale trade Unadjusted for seasonal	Dec.		1943 from 12	
variation	Month ago	Year ago	mos. 1942	
Sales Total of all lines. Boots and shoes. Drugs. Dry goods. Electrical supplies. Groceries. Hardware. Jewelry. Paper.	- 6 +53 + 4 -28 +28 -18 -13 - 1 - 7	$ \begin{array}{r} -1 \\ 0 \\ +6 \\ -21 \\ -8 \\ -1 \\ +17 \\ +10 \\ +21 \end{array} $	+ 9 + 8 + 4 +13 +16 +12 - 5 - 6	
Inventories Total of all lines. Dry goods. Electrical supplies. Groceries. Hardware. Jewelry. Paper.	$\begin{array}{c} +1 \\ +24 \\ +3 \\ +2 \\ -12 \end{array}$	$ \begin{array}{r} -2 \\ -10 \\ -31 \\ +25 \\ -7 \\ -8 \\ -24 \end{array} $		

Source: U. S. Department of Commerce.

	Dec.	Per cen	tchang	e from	
Prices	1943	Month ago	Year ago	Aug. 1939	
Basic commodities (Aug. 1939 = 100) Wholesale	179	0	+ 4	+ 79	
(1926 = 100) Farm	103 122	0 0	$^{+2}_{+7}$	$^{+38}_{+100}$	
FoodOther	106 98	0	$^{+1}_{+2}$	$^{+}_{+}$ 57 $^{+}_{22}$	
Living costs (1935-1939 = 100) United States	124	0	+ 3	+ 26	
Philadelphia Food	124 136	+ 1	$+3 \\ +3 \\ +4$	+ 26 + 46	
Rent	132	0	+ 5	$+33 \\ +4$	
Fuels Housefurnishings Other	109 125 116	+ 3	$+5 \\ +2 \\ +2$	+ 13 + 25 + 15	

Source: U. S. Bureau of Labor Statistics.

	Adjusted for seasonal variation					Not adjusted			
	Dec. 1943			Per cent change Dec. 1943 1943 from from 19					
Indexes: 1935-1939 =100							Dec. 1943	Nov. 1943	Dec. 1942
				Month ago	Year ago	mos. 1942			
RETAIL TRADE							1		
Sales				1116-					
Department stores—District	133	157	139 137	-15 -15	- 4 - 8	+6+5	249	200	260 261
Women's apparel	140	162	131	-13	+ 7 + 3	+19	231	183	215
Men's apparel	135 133	160 142	132	$\begin{vmatrix} -16 \\ -6 \end{vmatrix}$	- 8	+7	248 160	182 140	242 174
Furniture				+19*	- 5*				
Inventories									
Department stores-District	139	132	150	+ 5	- 7		127	160	137
Philadelphia	137	130	152 148	+ 6	$-10 \\ +21$		129 174	158 216	143
Shoe. Furniture.	103	92	114	+11 - 8*	-10 -15*		93	93	103
FREIGHT-CAR LOADINGS									
Total Merchandise and miscellaneous	140	141	126	- 1	+11	- 1 - 1	134	142	121
Merchandise—l.c.l	137 88	135	126	+ 2	+ 9 +15	0	130 87	139	119 76
Coal Ore	136 149	118	116	+15 -35	$^{+17}_{-10}$	-10	146	127 228	125 81
Coke	208	175	188	+19	+10	+ 2	225	196	203
Forest products	128 134	112 152	110	$+15 \\ -12$	$^{+16}_{+15}$	-5 + 10	109 139	107 172	93 121
Livestock	138	133	132	+ 3	+4	+12	149	152	141
MISCELLANEOUS									
Life insurance sales	92	105	84	-13	+10	+12	99	118	90
Number				0*	-56*	-63*	10	10	24
Amount of liabilities	161	153	143	+92*	-51* + 12	$+12* \\ +17$	7 193	163	15

^{*} Computed from unadjusted data.

BANKING STATISTICS

Sources of funds:
Reserve Bank credit extended in district...
Commercial transfers (chiefly interdistrict)
Treasury operations

Uses of funds:
Currency demand
Member bank reserve deposits
"Other deposits" at Reserve Bank
Other Federal Reserve accounts

			TITIO DIMITOI	LUL			
	23.03		MEMBER BANK RESERVES AN	D RELA	TED FAC	CTORS	
	1	Changes in-	Philadelphia Federal Reserve District	Ch	anges in v	weeks end	ed—
banks	Jan.	Chauges III—	(Millions of dollars)	Dec. 29	Jan. 5	Jan. 12	Jan.

Reporting member	Jan.	Changes in-			
(000,000's omitted)	19, 1944	Four	One		
Assets Commercial loans Loans to brokers, etc Other loans to carry secur Loans on real estate. Loans to banks. Other loans.	\$ 255 37 10 39	-\$ 4 - 1 - 2 - 1	+\$ 13 + 10 - 2 - 7		
Total loans	\$ 444	-\$8			
Government securities Obligations fully guar'teed Other securities	\$1489 71 175	+\$ 9	+\$467 + 2 - 61		
Total investments	\$1735	+\$ 8	+\$408		
Total loans & investments. Reserve with F.R. Bank Cash in vault. Balances with other banks Other assets—net	397 29 82	+\$20 - 3 - 3 + 1	+\$408 - 47 + 3 - 26 - 4		
Liabilities Demand deposits, adjusted Time deposits U. S. Government deposits. Interbank deposits. Borrowings Other liabilities. Capital account.	171 303 353 	+\$40 + 5 - 45 + 15 - 1 + 1	+\$200 + 3 + 140 - 18 + 2 + 7		

Member bank reserves (Daily averages; dollar figures in millions)	Held	Re- quired	Ex- cess	Ratio of excess to re- quired
Phila. banks 1943: Jan. 1-15	\$418	4250	***	
Dec. 1-15	371	\$358 360	\$60 11	17%
Dec. 16-31.	367	357	10	3 4
1944: Jan. 1-15	370	357	13	4
Country banks				
1943: Jan. 1-15	256	184	72	39
Dec. 1-15	263	213	50	24
Dec. 16-31	269	214	54	25
1944: Jan. 1-15	272	215	57	26

Federal Reserve Bank of Phila.	Jan.	Changes in				
(Dollar figures in millions)	19,	Four	One			
	1944	weeks	year			
Bills discounted	\$ 1.2	$ \begin{array}{r} -\$ \ 0.4 \\ 0 \\ + \ 0.1 \\ - \ 75.9 \end{array} $	+\$ 0.8			
Bills bought	0		0			
Industrial advances.	4.4		+ 0.1			
U. S. securities	785.1		+ 343.0			
Total Note circulation Member bk, deposits U.S. general account Foreign deposits Other deposits Total reserves Reserve ratio	27.0 131.1 5.9	-\$76.2 + 1.8 + 38.4 - 41.3 - 0.8 - 5.1 + 90.8 + 4.8%	+\$343.9 + 301.6 - 20.2 + 4.0 + 60.7 - 1.6 - 2.0 - 12.9%			

 $^{-19.1}_{+22.3}_{-22.1}$

-18.9

 $\begin{array}{r}
-6.7 \\
-10.9 \\
-1.1 \\
-0.2
\end{array}$

-18.9

 $^{-83.3}_{+22.7}_{+70.5}$

+ 9.9

 $^{+\ 1.1}_{+12.7}_{-\ 3.9}_{-\ 0.0}$

+ 9.9

 $^{-20.0}_{+\ 4.8}_{+47.8}$

+32.6

 $^{+\ 3.0}_{+30.7}_{-\ 1.2}_{+\ 0.1}$

+32.6

Jan. 19

 $\begin{array}{r}
-2.9 \\
-14.7 \\
+24.1
\end{array}$

+ 6.5

 $\begin{array}{c|cccc}
-0.3 & -2.9 \\
+6.0 & +38.4 \\
+1.0 & -5.1 \\
-0.2 & -0.3
\end{array}$

+ 6.5 + 30.1

Changes in four weeks

 $\begin{array}{r}
-125.3 \\
+35.1 \\
+120.3
\end{array}$

+ 30.1

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