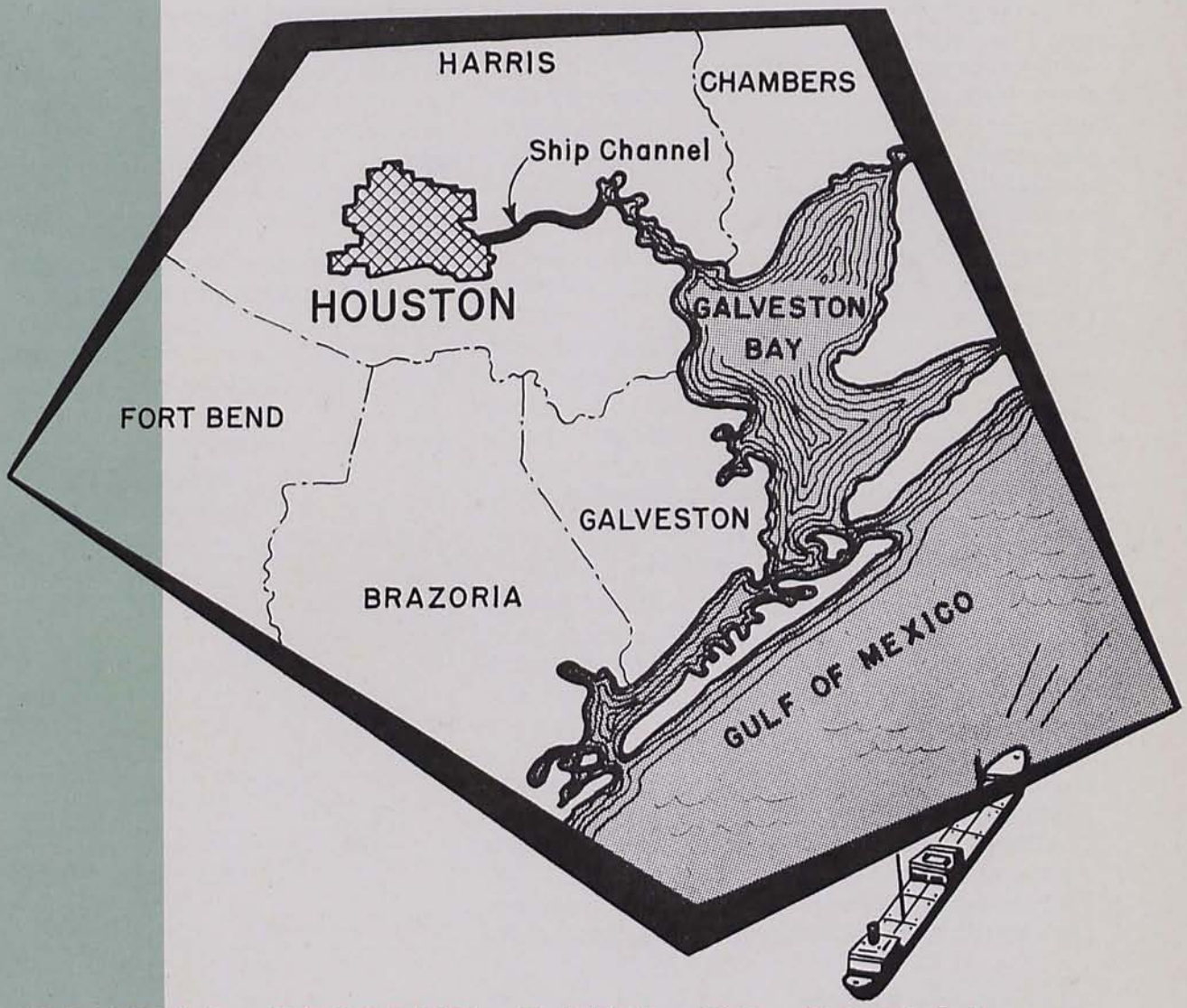
BUSINESS REVIEW

APRIL 1959
Vol. 44, No. 4

HOUSTON



FEDERAL RESERVE BANK OF DALLAS
DALLAS, TEXAS

Houston, an industrial giant among the urban centers of the Southwest, produces not only an important part of the industrial output of this area but also a significant share of the Nation's refined petroleum products, chemicals, and oil field equipment. With its natural and human resources and excellent transport facilities, Houston has become the principal marshaling and processing center for much of the region's agricultural and mineral resources and has developed into a focal point for regional management of a number of industries.

By means of its Ship Channel access to the Intracoastal Waterway and the major rivers, the city has established close trade relationships with the southern and midwestern river ports. The Ship Channel also has given Houston an opportunity to develop close economic ties with the principal domestic coastal ports, as well as the major international ones. In its southwestern trade, this city has been oriented primarily on an east-west axis, largely because of a mutuality of economic interests among the gulf coast areas. The availability of similar basic resources has spurred the development of industries which attract those of a like or complementary nature. Thus, particularly in the oil, chemical, and metal industries, a strong interchange of products and materials welds the entire area into an economic unit.

To the extent that it isolates one part of the economic unit from the whole, this analysis of Houston and Harris County is incomplete. Nevertheless, as a metropolitan area, Houston must stand by itself in many activities; and certain problems are peculiar to this city, rather than being a feature of the entire coastal region. Moreover, in appraising the early growth and development of Houston, it is necessary to consider why Houston, rather than some neighboring centers, became the dominant urban area.

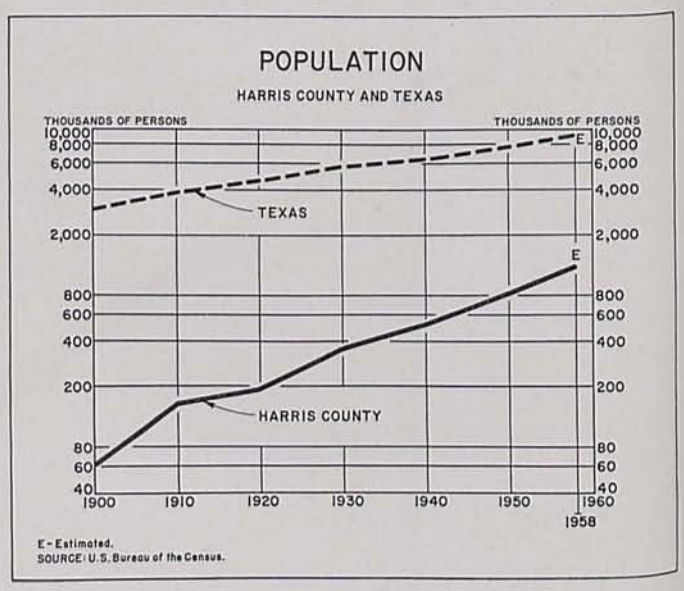
Historical Development

Houston owes a part of its early growth and development to a series of fortuitous events — a war, a flood, and the discovery of oil; but the city's ability to capitalize on these events derived principally from the vision and leadership of its citizens. In 1836, Augustus and John Allen purchased land at the headwaters of Buffalo Bayou to start a new settlement, despite the nearby location of Harrisburg, a small but thriving city. To Houston's benefit, Harrisburg was burned by Santa Anna's soldiers; and before it could be rebuilt, Houston began to develop. A second event stimulating the new city's growth was its selection as the first capital of the Republic of Texas. Although this designation was withdrawn 3 years later, the initial impetus had started a city.

From 1836 to 1915, Houston prospered primarily as a center for agricultural, livestock, range, and forest products. Its transportation facilities were a major asset, even in the early years. Buffalo Bayou was used as a waterway, despite the hazards of an undeveloped channel. Rail transportation followed the growth of the city, though Houstonians had to work hard, in competition with nearby towns, to obtain railroad connections. From 1850 to 1902, Houston was designated a major stop by 14 railroads, including a transcontinental line established in the early 1880's.

This 80-year interval, from 1836 to 1915, was the first of three major periods in the development of Houston. The vast cattle ranches and farms shipped products through the city and relied upon the merchants and manufacturers of Houston to supply them with farm implements and other necessities. Thus, the beginnings of manufacturing in Houston were keyed to agriculture. Lumbering became important in the 1890's and — together with agriculture, shipping, and small manufactures — formed the economic base of Houston at the turn of the century. With a population of 64,000 in 1900, Houston was the third largest city in Texas.

At this juncture, two events occurred that were to have a profound influence on Houston's economic development. First, in late 1900, a damaging hurricane built up a tidal wave which inundated Galveston, the leading port city; and Houstonians began a concerted drive to



obtain a deepwater channel to the gulf. Secondly, oil was discovered at Spindletop in 1901; and further discoveries were made near Humble in 1904, creating Harris County's first oil field.

About 1915, Houston expanded its economic structure — in a second stage of development — to include oil and associated industries. However, agriculture and related manufacturing and processing industries continued to provide an important share of the personal income and employment of the city. Although these industries have steadily declined in relative importance, their total output and dollar volume have expanded in virtually every year, even up to the present time.

The completion of the deepwater Ship Channel in 1915, providing easy direct access to domestic and international markets, and the simultaneous development of the automobile and the airplane, which sparked a sharp rise in the demand for petroleum products, started Houston into a new era of growth. The use of petroleum products also was notably advanced by developments during World War I. The competitive leasing of oil lands by Texas companies forced most major oil concerns to establish semiautonomous divisions in the State, and a number of these were located at Houston. With its port facilities and company offices, Houston was the logical site for refinery activities, and this advantage was immediately recognized and exploited. In 1928, Texas reached first place in crude oil production and, by 1930, ranked first in refining.

Coincident with the expansion of oil production and refinery activities came a host of new oil-based industries, especially oil field machinery and supply concerns. By 1929, Harris County — with nearly 350,000 in population — was first in Texas as a manufacturing center, and the Houston port ranked sixth in the Nation. A measure of the growing significance of oil to Houston is the fact that, by the late 1920's, oil shipments had already become nearly as large as cotton movements.

The decade of the 1930's further consolidated Houston's position as the leading oil-processing center and port city of the Southwest. Oil activities became unsettled in the period of overproduction in the early part of the decade, but when conservation and prorationing legislation was enacted in 1933, a solid basis for future growth was established. By 1939, the Port of Houston was third in the Nation in total cargo traffic, and the complex of port facilities, oil, and other natural resources had attracted a number of new industries. With these industries came a sharp rise in population, and in 1940, Harris County had nearly 530,000 people, or almost triple its 1920 total.

Another phase of Houston's development began with World War II and carried over with sharp acceleration into the postwar period. The economic structure of the city, while accentuating its previously commanding position in oil and related industries, broadened again to accommodate the growth of the chemical and petrochemical industries. The early wartime establishment of a primary steel producer, a major ordnance plant, and a magnesium plant and the construction of the War Emergency Pipelines were only a small indication of the progress ahead. World War II was fought with men and machines, the latter requiring enormous quantities of petroleum products. Thus, demands for oil, synthetic rubber, explosives, and aviation gasoline soared; and with those demands came further growth for Houston.

While the older firms expanded, there developed a new chemical industry using primarily the products and by-products of the oil and gas fields and oil refineries, as well as local deposits of salt and sulfur. Between 1940 and 1947, Texas rose from tenth place to sixth place among the states in chemical production and, since then, has risen to the second rank. Houston's growth from 1940 to 1958, with its population increasing more than 600,000, can be attributed, in large part, to continued expansion in oil and the rapid development of the petrochemical and related industrial segments. Houston's prime attractions — low-cost transportation and fuel and available labor and raw material resources — lie at the foundation of this industrial growth.

Natural Resources

Houston's growth as an industrial center is, to a significant degree, the result of its proximity to large supplies of various natural resources. The forest products industry and associated manufacturers and processors, utilizing the abundance of wood available in nearby east Texas areas, developed early in Houston's history. The growth of refining and, subsequently, the chemical industry can be traced largely to the availability of natural gas, oil, oystershell, salt, and sulfur near coastal and deepwater transportation.

This dependence upon natural resources is based, of course, upon availability from a broad section of the State, rather than just Harris County. The gentle slope of the Texas plain has aided the development of a network of pipelines that brings crude oil and natural gas

to Houston from virtually all major producing areas in Texas. Although Harris County ranks first in Texas in manufacturing, it is third among the State's counties in the value of mineral production. In fact, mineral resources are much more important as stimuli to other industries in Houston than as a direct source of income.

Proved oil reserves in Harris County approximate 540 million barrels, while reserves in the 29 counties within a 100-mile radius of Houston total nearly 3.5 billion barrels. Natural gas reserves in the county are about 2 trillion cubic feet; in the surrounding 29 counties, natural gas reserves are on the order of 28 trillion cubic feet. The Texas gulf coast area as a whole has one-half of the gas reserves of Texas and one-quarter of the national total.

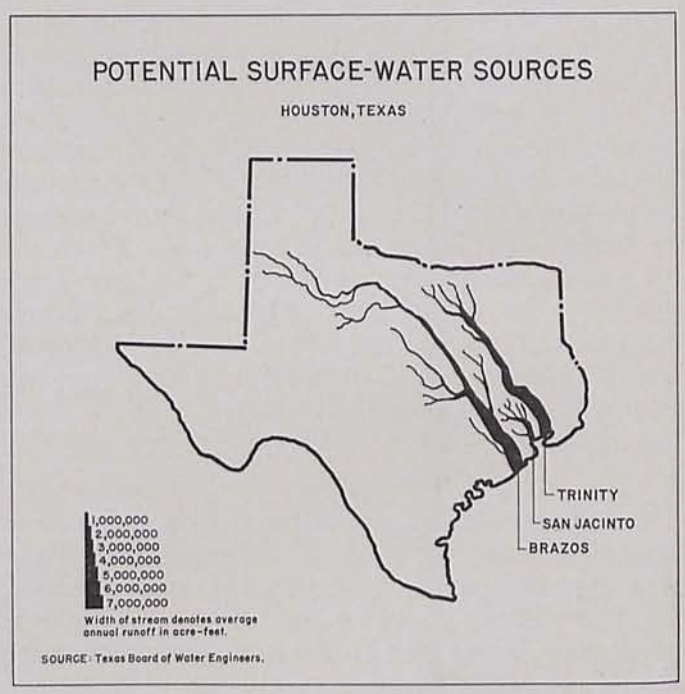
Although Harris County itself produces only recovered sulfur, a large portion of the Nation's native sulfur comes from the adjacent counties of Brazoria, Fort Bend, Jefferson, Liberty, and Wharton. Thus, Houston industries have an abundant nearby source of this vital raw material, available at relatively low transportation charges.

Also in abundant supply in Harris County is oystershell, which is used in manufacturing lime and cement. The county is the largest producer of cement in Texas and ranks second in the State in lime production (all from oystershell). Lime is used extensively in the chemical industry and has other industrial applications in the Houston area, such as paper manufacturing. Salt is produced in the county, too, from both mines and wells.

A source of minerals as yet relatively untapped is the salt water of the gulf. Magnesium and bromine are currently being extracted, but other minerals could be drawn from the salt water when processes are perfected and it becomes commercially feasible to develop them. The water might eventually be used for industrial or home consumption, subject to the same considerations.

The Houston area also is fortunately situated near large fresh-water supplies from both subsurface and surface sources, although the city has not fully exploited these sources and thus faces a near-term water problem. Located over a large area of water-bearing sands, Houston has relied heavily upon wells to meet the sharply rising demand. At present, with an available supply of 346 million gallons per day, subsurface sources yield about 220 million gallons daily, and surface sources supply 126 million gallons per day. This reliance upon subsurface water supplies has brought a substantial decline in the water table and land subsidence, although the latter has been generally halted.

Surface supplies, actual and potential, are quite large and appear to be ample for even Houston's growing needs for some time to come. At present, however, the only available major surface supply is Lake Houston, which was created in 1954. The maximum currently available to the city from this source is 150 million gallons per day, of which 75 million gallons daily are reserved for industrial use and an equal amount, for municipal use. The entire industrial allocation was sold months before the facilities were completed since, in some areas, pumping has become more expensive than purchasing city water.



Surface supplies are potentially available from both the San Jacinto and the Trinity Rivers, as well as other nearby rivers. The San Jacinto River is reportedly capable of producing 570 million gallons per day above the current 225 million gallons per day from Lake Houston. The San Jacinto River Authority has developed plans for several dams, three of which have a potential of 300 million gallons daily. The main obstacle to the consummation of these plans has been the lack of a contract between the Authority and the city of Houston. However, the city is negotiating to purchase the extra 25 million gallons per day available at Lake Houston, and with the money, the Authority is planning to build the dam near Conroe.

Recently, the city officials requested permits from the Board of Water Engineers to construct two dams on the Trinity River. It is estimated that the reservoirs would provide about 1.1 billion gallons per day, which would indeed be a major addition to Houston's water supply. However, since this would be an interwatershed allocation, there are likely to be extensive hearings on the matter.

The water needs of the people and industries of Houston are very large and probably will continue to grow. Just allowing for some expansion of present industries and for a rising rate of home consumption, water requirements are expected to equal the present available supply by about 1961.

Another of Houston's natural resources is its climate. The temperature is relatively high during the summer months, but the nearby gulf provides a cooling breeze. Summers are usually warm and humid, and the winters bring only a rare day with freezing temperatures. While Houston receives an average yearly rainfall of 45 to 50 inches, there is an abundance of sunny days, and outdoor activities are an important facet of living in Houston. The combination of hot, sunny days and substantial rainfall during the summer enables farmers to grow at least two crops per year. The mild, open climate encourages savings on industrial construction and is a major advantage to industrial operations.

Finally, Houston's natural resources include its land. Not only is the area blessed with a productive soil but, because of its geographical location, there are no immediate barriers to the growth of the city. Houston is built on a plain, with land available in all directions. Although the city has grown more to the south and west, even larger stretches of farm land to the north could be subdivided.

Human Resources and Cultural Environment

Although Houston's natural resources are undoubtedly a major factor in its growth, the city's human resources are equally impressive. Of the metropolitan area population of 806,701 in 1950, only 4.7 percent was over 65 years of age, or well below the state figure of 6.7 percent. The median age of Houston's population in 1950 was about 29, which is slightly above the 28 median for the State. Thus, Houston's population is relatively young, with the majority centered in the most productive working ages of 25 to 45.

The labor supply of Houston is drawn from three major sources — the surrounding farm land, natural additions, and net in-migration from other areas. Until recently, many of Houston's technical personnel had to be imported, and new plants brought their senior staff men from the home office of the company. Now, however, in a background of 15 years of accelerated industrial growth, a local pool of skilled workers has developed in nearly all the major industries of oil, chemicals, metals, and machinery.

Many of these newly skilled workers were farm boys brought to the city by a lack of farm jobs and by the lure of high wages and life in a big city. Industry has found these farm workers especially susceptible to training in metalworking and machinery industries, perhaps because they became familiar with machines on the farm and learned to make minor on-the-spot repairs.

As in the case of any growing industrial area, the demand for skilled and educated workers is apparent in Houston. Of the 1950 population comprised of age 25 and over, more than 36 percent had completed high school training — in contrast to a state-wide average of only 30 percent. Much of the credit for this level of education and for the growing list of college graduates must be given to the schools and colleges of Houston. The network of expanding public elementary and secondary schools in Harris County has a current enrollment of about 239,000 pupils. In addition, parochial schools at the same levels have 18,000 students.

Beyond the basic educational levels, Houston is well prepared with a number of colleges and universities. The largest is the University of Houston, which has about 13,000 students and is the second largest university in Texas. Beginning as a junior college in 1927, this university was built largely through the philanthropy of a Houston oilman. Founded by another wealthy Houstonian, Rice Institute — the oldest university in Houston — was opened in 1912. Its enrollment for 1958-59 is 1,800 students. At Rice, exacting entrance requirements carefully screen the student body to a level conducive to individual attention.

The University of Saint Thomas and Sacred Heart Dominican College, two denominational colleges, have enrollments of 411 and 420, respectively. Saint Thomas is a small liberal arts college, while Sacred Heart Dominican College specializes in training teachers. The Negro college, Texas Southern University, has 2,757 students enrolled. Texas Southern offers courses leading to bachelors' and masters' degrees in most liberal arts and science courses. Moreover, there are a number of medical schools, including the Baylor University Col-

lege of Medicine and the University of Texas Dental Branch and M. D. Anderson Hospital and Tumor Institute.

The importance of these colleges and universities to Houston can scarcely be overestimated. Not only are they providing the professional talent for an increasingly complex industrial city, but the highly trained faculties have made themselves available for consulting work with many of Houston's largest companies. These contributions, often overlooked, have reached the proportions of a significant industrial attraction for Houston.

The cultural environment of Houston has shown marked progress in recent years. A recognized symphony orchestra, a new auditorium and music hall, the growing museum of fine arts, and the beginnings of a modern civic center are special features of this progress. Houston's many fine restaurants, hotel dining rooms, and private clubs are also a mark of the city's growth. In keeping with the nationwide religious movement, Houston is represented by many fine churches embracing virtually all denominations.

Perhaps one of the strongest appeals of living in Houston is the abundance of recreational facilities and activities. Most Houstonians enjoy outdoor life with excellent fishing, boating, and swimming facilities at local parks, at Lake Houston, in the bayous, or in the nearby bays and gulf. The famous Galveston beaches are only a short distance from Houston via the new Gulf Freeway, and less-populated spots are not far away. The citizen of Houston who likes spectator sports can watch college football teams, a professional baseball team, and professional prize fighters. Those interested in golf find a number of excellent private and public links.

In addition to the purely cultural and recreational value of these facilities, they also have an economic value. They provide a source of income and employment in the Houston area, and with the growth in population, such income and employment are likely to expand at a rapid rate. The activities also have an important influence upon the environment in which people live and work; hence, their character is of vital importance to the business interests of any city. In Houston, where such facilities are excellent, they exert a strong pull for the location of new industrial plants and businesses.

These natural, human, and cultural resources form the environmental support of the Houston economy. To appraise the structure of this economy, however, further consideration must be given to the sources of employment, the income of the people, and the relative importance of the city's basic industries.

Employment and Income

Probably the best over-all measurements of the economic progress of a city are the employment and income of its people. Employment in the Houston metropolitan area showed rapid growth during the past 18 years, especially between 1940 and 1950. In this latter period, employment rose 54 percent, despite a reduction of nearly one-third in the number of agricultural workers. Nonagricultural employment increased about 57 percent during the decade, compared with a 54-percent gain for the State as a whole. From 1950 to 1957, the Houston advance slowed slightly, and the state-wide gain was at about the same rate.

Houston accounted for 14 percent of nonagricultural employment in Texas in 1940, 1950, and 1957. This pattern of comparable growth from 1940 to 1950 and from 1950 to the present is evident throughout most of the major employment categories. However, the state-wide advance in factory employment has been slightly faster than the Houston rate of gain for the entire period. Also, from 1950 to 1957, the State's advance was greater for the finance, insurance, and real-estate category; on the other hand, the city's gains were larger for the transportation, communications, and utilities category and for the services group.

The composition of nonagricultural employment in the Houston area differs moderately from the state-wide structure, reflecting in large measure the importance of manufacturing and construction in Houston. Manufacturing employment accounts for about 21 percent of the Houston nonagricultural total but only 19 percent of the state total. Construction employment amounts to over 9 percent of nonagricultural employment in Houston although just 7 percent of the state figure. In contrast, trade and government employment is responsible for significantly larger percentages in the State than in Houston.

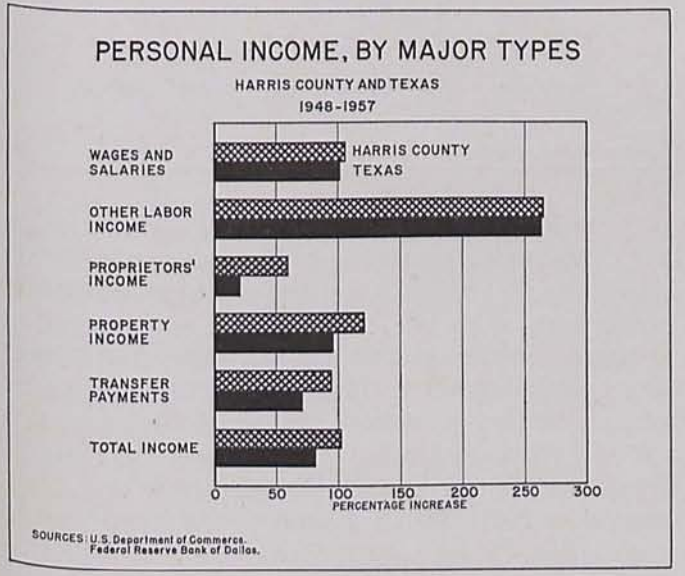
Several important facets of the Houston economy are evident from these figures. First, it is clear that Houston's outstanding period of development occurred between 1940 and 1950. Secondly, it is equally apparent that, because of the type of industrial growth in Houston, factory employment has risen at a somewhat slower pace than in the State. The chemical and oil refining

industries, which are responsible for much of Houston's recent growth, have some of the most automatic, highly mechanized plants in the Nation. While such plants are costly to construct and equip, their operations require only a relatively few skilled engineers and maintenance personnel. Another reason for Houston's apparently slower demand for manufacturing workers is the fact that a number of manufacturing plants have located in areas adjacent to Houston and, though these plants depend upon Houston for services and distribution, their workers are not counted in the Houston total.

Houston's technologically complex industrial growth demands the better-skilled worker and professional employee. Therefore, while the increase in the number of Houston's manufacturing workers may not have kept pace with the state advance, the quality and type of worker more than compensate for the difference.

Another facet of considerable importance to Houston's economy is the relative significance of construction employment. The post-World War II period has shown a steady rural-to-urban movement of the population, which has accentuated home building in the larger urban centers. In addition, multiple expansions of manufacturing concerns in Houston, coupled with the exceptionally large new industrial construction, have sustained a sizable construction force.

A second major indicator of Houston's growth and prosperity is the personal income of its people. Personal income in Houston totaled nearly $2.5 billion in 1957, reflecting a gain of more than 100 percent over the total in 1948. This rate of increase contrasts with a state-wide advance of 81 percent for the same period. Of the various types of personal income, wages and salaries showed the strongest absolute advance, while, on a percentage basis, other labor income and property income moved up at the fastest pace. All major sectors registered greater percentage growth than the comparable segments of the state total, though the State led in certain subcategories.



The differences in structure between the Houston and Texas economies are re-emphasized by the internal composition of personal income. Of the major sectors, there are important differences in wages and salaries, property income, and transfer payments. Wages and salaries are a more significant source of income to Houston than to the State; the reverse is true for property income and transfer payments. Within the wages and salaries sector — which is about 70 percent of Houston's personal income total — construction, manufacturing, trade and services, and transportation income is relatively more important in Houston than in the State and accounts for 79 percent of wages and salaries in the Houston area. In contrast, mining, government, and all other wage and salary sources provide nearly 36 percent of the state total but only 21 percent for Houston. On a per capita basis, Houston reflected a personal income level of $2,180 in 1957, or 22 percent above the comparable state figure.

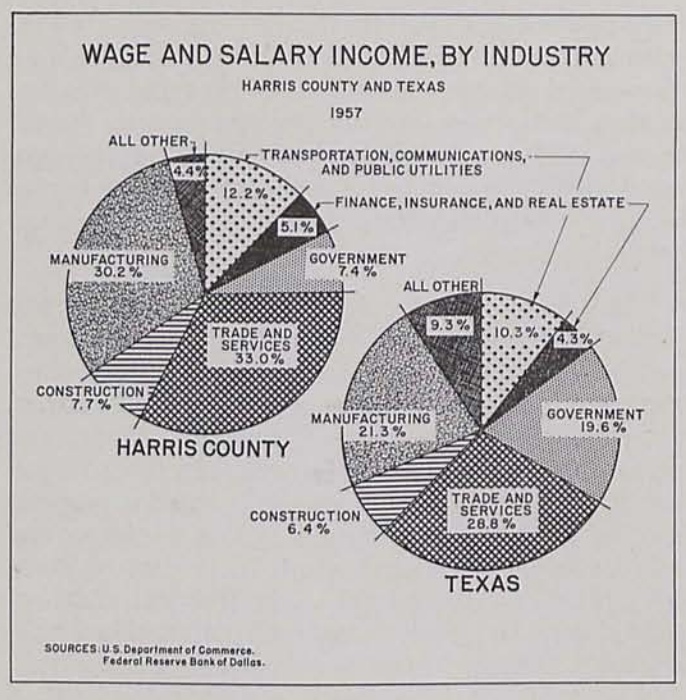
Concealed in these personal income data, especially when measured against the corresponding employment totals, are a number of important facts about Houston. First, the average wages of Houston's workers are quite high relative to the state-wide total. Secondly, of special significance is the relatively low contribution of government to wages and salaries. The income of government employees contributes less than one-half as much to the city of Houston as to the State of Texas. While all levels of government are important as buyers of Houston's principal manufactured products, there are just a few state offices and only one major military installation in this area. Thus, the large military installations in Texas

AVERAGE WEEKLY AND HOURLY EARNINGS OF MANUFACTURING WORKERS, DECEMBER 1958

Harris County and Texas

Type of manufacturing	Average weekly earnings		Average hourly earnings	
	Harris County	Texas	Harris County	Texas
Total.....	$100.36	$86.94	$2.43	$2.10
Durable goods.....	97.76	88.41	2.35	2.09
Nondurable goods....	102.66	85.26	2.51	2.10

SOURCE: Texas Employment Commission.



provide an income source that is missing from the Houston area.

Equally significant is the exceptional amount of income derived from wages and salaries of workers in the manufacturing and construction fields. The large amounts attributed to these two industries stem partly from the high level of wages paid in both industries and partly from the concentration of activity in the Houston area. Manufacturing in Harris County represents about one-fourth of the state total, and construction, nearly one-fifth. To some extent, the latter activity both follows and precedes the former since heavy industrial construction increases manufacturing capacity, which, in turn, requires sizable maintenance and remodeling as the years go by. In 1958, a sharp rise in transfer payments for unemployment compensation probably increased the relative importance of this type of income, particularly in view of the decline in wages and salaries from manufacturing. However, as the Nation and Houston recover from the recession, it is likely that the former pattern of income sources will be restored.

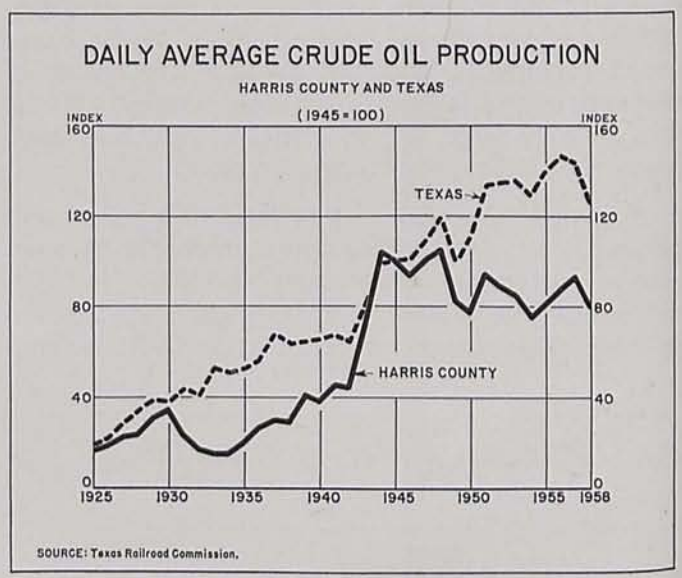
Basic Economic Activities

As reflected above, it is clear that the economic structure of Houston is based primarily upon the mining, transportation, and manufacturing activities in the area. Government and agriculture are less important as measured by employment and income, although their indirect contributions have been, and continue to be, real factors in Houston's growth. Other economic pursuits also are important to Houston, especially construction activities and the gas and electric utilities. Details of these activities will be discussed later.

MINING

The first basic industry of the Houston area is mining, primarily petroleum and natural gas. Direct employment and labor income from mining are only about 4 percent of the Houston totals, and from 1948 to 1957, wages and salaries from mining concerns increased at a slower pace than in the State. Nevertheless, such income in the Houston area in 1957 amounted to $71 million, or 10 percent of the state total for that source.

The value of mineral production in Harris County expanded sharply in the past 15 years, reaching $124,671,548 in 1957. Ranked by the order of the value of production, the principal minerals produced in this area are petroleum, natural gas liquids, natural gas, lime from oystershell, salt, sulfur, clays, and sand.



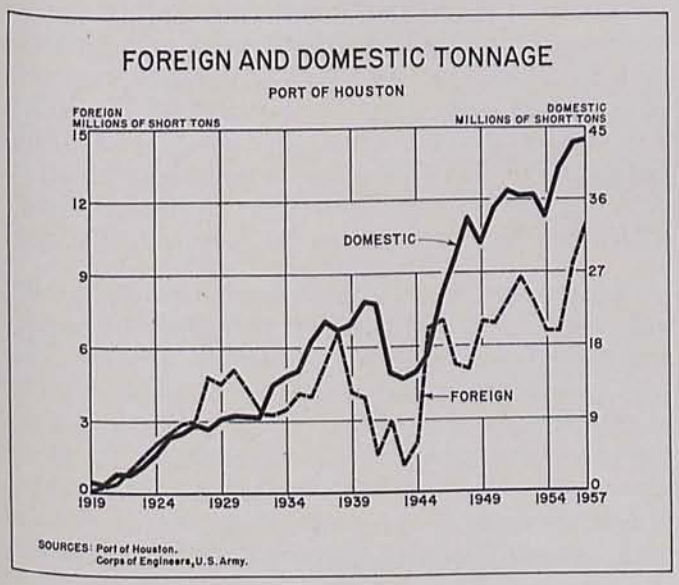
Oil production in the county rose from an average of 15,000 barrels per day in 1925 to a peak of 90,000 barrels per day in 1948 but declined to about 80,000 barrels per day in 1957 and, because of proration, to an even lower rate in 1958. Oil production and drilling have been important in Harris County for many years; total production of oil from the completion of the first well in 1905 until January 1, 1958, was 719,800,000 barrels, or 3.5 percent of total state production. On a cumulative basis, Harris County is the fourth largest oil-producing county in the State.

Recent problems in the oil industry related to overproduction, a slackening in the rate of increase in demand, and the importation of foreign oil caused a decline in state production in 1958 and a sharp cutback in drilling activity. However, toward the end of the year, a moderate recovery developed, and Harris County oil producers undoubtedly shared in that movement. The importance of mining to the Houston area lies not in the direct income generated but, instead, in its ability to provide the raw materials for industrial expansion. Once these became available, Houston began to develop rapidly.

SHIP CHANNEL AND PORT

No analysis of the Houston economy could neglect the influence of the Ship Channel and port facilities, which are basic to its transportation industry. As mentioned earlier, the deepwater Ship Channel has been a magnet for new industry since its opening in 1915. Heavy cotton movements, the selection of Houston as a terminal for oil and gas pipelines, the establishment of oil refineries in the 1920's, and the growth of coffee, chemical, and other exporting and importing concerns have been a direct result of the Ship Channel access to the high seas.

The channel winds its way 52 miles from Galveston to the turning basin at Houston. Originally dredged to a depth of 24 feet, the channel is now almost a complete 36-foot draft, and plans for a 42-foot depth are being prepared. The channel also has been widened repeatedly, and a current broadening to 300 feet is nearly completed. Besides the Ship Channel access to the oceans of the world, there is the connection with the Intracoastal Waterway, whereby barge traffic can travel from Houston to the Missouri, Ohio, and Mississippi River ports — as well as east coast terminals. A substantial volume of traffic is generated by this connection.



Of great importance in developing the use of the Ship Channel has been the Port of Houston, with its wharves, docks, and railroad facilities. The Houston port is a mixed port, having both private and public docks capable of berthing 85 vessels and 47 barges simultaneously. Greater use and growth of the public facilities are evidenced by two multimillion-dollar expansion programs at the public port. The $7 million program currently under way will create three new docks and additional railroad facilities; an even larger program, estimated to cost $12 million, is being readied to provide a handling plant for bulk materials, a new warehouse and dock, and other rehabilitation work.

The traffic of the Houston port has shown phenomenal growth, reaching 53,171,073 short tons in 1958, or 31 percent above the total only 4 years before and more than double the tonnage moved in 1945. Crude petroleum and products account for about 65 percent of all tonnage, and domestic shipments amount to 80 percent of the port's movements. According to the 1957 Annual Report of the Houston Port Commission, foreign imports during 1957 were heavily concentrated in the nonmetallic minerals, ore, metals and manufactures, and vegetable food products. Exports to foreign countries showed this same concentration, with chemicals also being important.

The Houston seaport ranked second in the Nation behind New York City in total tonnage from 1947 to 1954, slipped to fourth place in 1955 (despite a new record tonnage in that year), but climbed to third place in 1957. The port probably retained this third-place ranking in 1958. Service to all the major ports of the world is offered to Houston by 107 steamship lines.

With the mineral resources available and an economical means of transport, Houston began to expand its previously agriculture-oriented manufacturing industries. Before long, it became apparent that the mining and transport activities were merely the facilitating agents in the creation of a basic industrial empire.

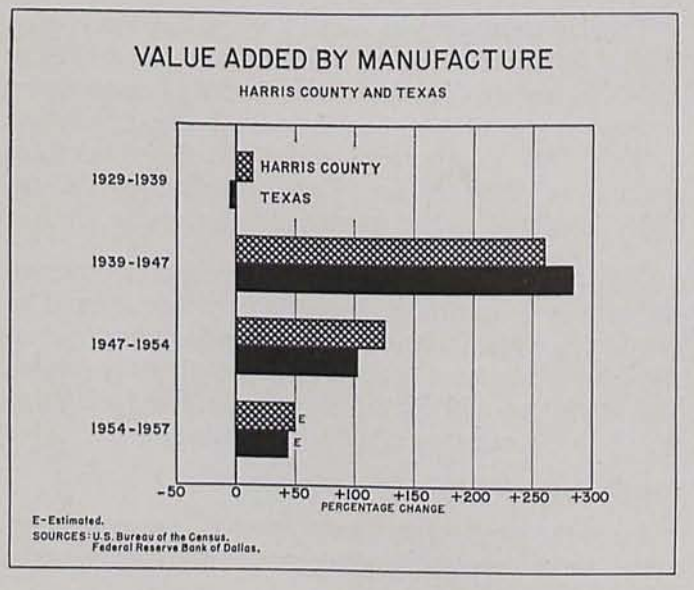
MANUFACTURING

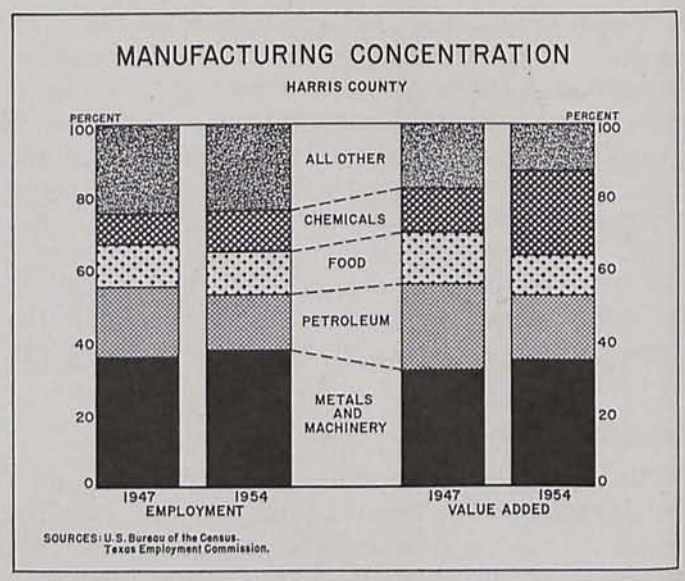
From the standpoint of recent growth, present importance, and prospective development, probably the most

outstanding feature of the Houston economy is its manufacturing sector. Manufacturing payrolls account for more than 30 percent of all wages and salaries paid in Harris County. In 1957 the county's manufacturing workers received wages and salaries totaling about $530 million, or nearly 23 percent of the state total.

Manufacturing in Houston is dominated by the oil and oil-related industries. The interlinking of oil and gas throughout the principal types of manufacturing is clearly evident, but even in some of the less important fields of factory output, oil and oil products have a significant influence. Based only on employment in crude petroleum refining, chemical, and oil field equipment industries, this complex accounts for over 40 percent of manufacturing employment, or for the employment of two out of every five manufacturing workers in Harris County. If other manufacturing concerns having the oil industry as their principal market are added to the above totals, the dominance of this industry in manufacturing would have to be measured in terms of more than one-half of the manufacturing employment of the area. The addition of mining employment and of various service and clerical workers further increases Houston's reliance upon its oil industry. It is probably a safe estimate that, in all of their various ramifications, oil and related industries account for over 150,000 employees and more than $1 billion in personal income for the Houston area.

Measured in a different and technical way, Houston manufacturers produced a value added (the total value of output less the cost of production) which reached





$869,021,000 in 1954, or more than double the 1947 total. Preliminary indications reveal that the value added by manufacturing in Houston in 1957 was approximately $1.3 billion.

The concentration of manufacturing in the petroleum, chemical, and machinery (except electrical) fields is emphasized even further by the value-added data. These three manufacturing fields in Houston accounted for nearly 62 percent of the value added in 1954, compared with 55 percent in 1947. It should be noted that, for petroleum refining and chemicals, the value added per employee is exceptionally high. This influence is transmitted to the Houston totals, with the city having one of the highest rates of value added per employee of any industrial area in the Nation. Other special characteristics of these industries have a considerable influence upon Houston. The heavy cost of intricate plant construction, the high wage rates (especially for professional personnel), the substantial average size of firms, and the interlocking raw material and product relationships are features which reflect in Houston's comparisons with other metropolitan areas or with the State.

Houston has been an important oil refining center since the 1920's and has held first place in refinery activity in Texas since 1932. Currently, its seven refineries have a crude charge capacity of about 650,000 barrels per day, or more than 7 percent of the Nation's capacity. Through repeated modernizations, the Houston refineries have kept pace with newer techniques and, in fact, have led in the development of a number of improvements. Refinery activities are directly responsi-

ble for about 14,000 workers and $88 million of wages and salaries in the Houston area. Equally important though, the by-products of the refinery processes provide the raw materials of the chemical industry.

The petroleum refining industry of Houston is still expanding, although the principal additions are those connected with increasing the availability of raw materials used by the chemical industry. With substantial refinery centers being developed on the East Coast, mainly to process imported crude oil, gulf coast refiners find themselves in an intensely competitive situation. The future of this important segment of Houston manufacturing is closely tied to national import policies, to the economics of refining foreign versus southwestern crude oil, to the production of raw materials for the chemical industry, and to the over-all demand for petroleum products in the Southwest and the Nation.

A corollary to the Houston oil industry is the metal and metal products industries of the area. Employing almost 40,000 workers, the primary metal, fabricated metal, and machinery concerns account for about $200 million in wages and salaries. Most of the products of these firms are directly related to the oil industry through their utilization by the drilling, production, refining, or transportation sectors. However, to an increasing extent, the metal industries of Houston are branching out into other types of products, particularly those associated with consumer durables and other nonoil-related products. This move may be expected to accelerate as the southwestern markets expand and the new products find their way into national and international markets.

It has been estimated that Houston's output of oil field equipment and services ranks first in the Nation, amounting to more than 35 percent of the nationwide total and representing products and services valued at nearly $450 million in 1957. The large production of steel ingots, drilling bits, fractionating towers, steel pipe, and machinery is evidence of the strength in this group of industries, whose output rose more than 10 percent from 1955 to 1957.

The chemical industry has had the sharpest growth rate of any major industry in the Houston area since 1950. Value added by manufacturing from chemical concerns has more than tripled since 1947. Employment in this industry amounts to 10,400 workers, with wages and salaries totaling more than $60 million. Petrochemicals are the largest segment of the industry, with polyethylene plastic being one of the leading products. The Texas Gulf Coast produces about 60 percent of the Nation's total polyethylene output, and three of the plants are on the Houston Ship Channel. Houston chemical companies are important producers of plastics intermediates, paint, synthetic rubber, oil additives, caustic soda, insecticides, chlorine, polyvinyl chloride, ammonia, sulfuric acid, and organic chemicals, such as acetone and methyl alcohol.

Being in the forefront of a new frontier of synthetic products, the chemical industry probably has the brightest future of any in the Houston area. The chemical concerns are constantly researching for new products and quite often find one which warrants immediate production. To a large extent, the output of Houston's chemical industry consists of products developed in the postwar period. The dynamics of this industry suggest that the next major step may be the production of end products for the large and growing southwestern markets.

Despite the dominance of the petroleum, chemical, and associated metal and machinery industries, there are a number of other types of manufacturing in Houston. As noted above, the output of nonoil-related products from the metal industry is increasing. In the nondurable goods industries, one of the interesting sectors of the city's industrial complex has been the growth of coffee-making concerns, which rely heavily upon the use of shipping facilities to import coffee from many parts of the world. Houston is the principal rice milling center for the Southwest, is a processor of cottonseed and cottonseed products and of prepared animal feeds, and, of course, has most of the indigenous types of industry, such as bakeries and bottling firms — which are expanding output to meet increasing demand. Other major food-processing industries include meat packing, dairy products, shortening and cooking oil, vegetable canning, food packaging, and beverages.

There is also a thriving pulp and paper industry, which more than doubled between 1947 and 1954. This industry has developed upon the availability of raw materials from the east Texas forests and the ever-widening demand for containers, boxes, wallboard, and paper. Its prospects for further growth are very promising.

In the durable goods sector, there are some rather large firms in the primary metals segment, featuring a steel mill with a capacity of 1,284,000 net tons, or more than 65 percent of the state total. Although much of this output is directed toward oil country tubular goods, a rising volume is being devoted to such items as tin

cans, chemical industry vessels, and special products. There are also a number of concerns in the stone, clay, and glass industries, some of which are common to most large industrial areas. The Houston area is noted for its large cement-making capacity. The lumber and wood products industry, which turns out a wide variety of products, also features concerns that ship creosoted wood products to all parts of the world. Some of the newer Houston industries include market-oriented consumer goods producers and fabricators. While this segment is not large, it is another local industry with good prospects for future growth.

The market area served by Houston manufacturers varies according to the size of the company and the type of product. The chemical companies generally sell in an international market for some of their products but a more or less restricted national market for others. The oil field equipment producers also sell on a world-wide basis, although a heavy proportion of their business is in the Southwest. It should be noted that, while Houston sells internationally, there are also substantial competitive imports into Houston, particularly of steel.

Houston's major heavy industrial concentrations are along the Ship Channel, but a number of large concerns are located close to the center of the city. Other industrial areas are found on the periphery of the Houston city limits, particularly on west Katy Road and on the south side near the airport. Since Houston has no zoning ordinances, industry could theoretically locate on any land without deed restrictions or land on which deed restrictions have expired; but, from a practical standpoint, the heavy industries need a site on the Ship Channel or in one of the industrial sections along the railroad tracks. Locations for light industries are plentiful in the Houston area, but sites for heavy industries—especially those needing Ship Channel access — are presently rather limited.

One possibility of improving the availability of industrial sites would be to have existing industries sell back their currently unused acreage. Recently, the Department of Defense, in accordance with permissive congressional legislation, authorized the closing of the San Jacinto Ordnance Depot. An estimated 5,000 acres will be made available for industrial use when disposal action is completed.

Houston's success in obtaining new industrial plants is a result of the many diverse attractions in the area. The availability of natural and human resources, the growth of educational and cultural activities, the deep-water port and other excellent freight facilities, the inbreeding of the refinery-chemical complex, the mild open climate, and the growing market of the area are outstanding attractions. In addition, the aggressive work of many Houston businessmen in contacting companies which might be considering a new plant and the use of industrial teams to present and explain Houston's prime attractions to an industrial prospect have been influential in a number of instances. A reasonable tax structure, low-cost available fuel, and the helpful brochures of the Chamber of Commerce and industrial departments of banks, railroads, and utilities also have contributed to Houston's success.

Two features of manufacturing in other highly industrialized centers are conspicuous by their absence in the Houston area. First, there are very few firms of the type which utilizes low-cost labor. The larger industries are generally those paying relatively high wages, and until the 1957-58 recession, Houston's labor market had been fairly tight. These factors, coupled with the availability of sites in other cities where competition for labor is not as severe, have discouraged low-wage industries from entering the Houston market. On the other hand, some industries are especially attracted by the Houston labor supply and are anxious to develop a plant in an area where there are a number of workers with the specific skills associated with the oil and chemical industries.

Secondly, there are only a few end-product manufacturers in this area. Houston's postwar industrial growth has centered upon products that are mainly raw materials to other manufacturers. This pattern is particularly evident in the chemical industry, where Houston polyethylene is shipped to firms in many parts of the country to be processed into plastic bags and other products. Many such products are returned to Houston for retail sales after a round trip of 3,000 to 4,000 miles. Houston's market is sufficiently developed to warrant the establishment of a number of consumer goods industries, especially those which would utilize the intermediates produced in this area.

Secondary Economic Features

The current structure of the Houston economy, as measured by employment and income, reflects less reliance upon agriculture and government than upon the basic features discussed above. However, special considerations in both of these activities make their contribution to Houston's growth a matter of more importance than is indicated by the relative shares of employment and income.

AGRICULTURE

Farming and ranching in the Houston area have a long history of successful operation and have made a substantial contribution to the city's growth. In the formative years of Houston's development, agriculture was the dominant source of income, both directly in terms of cash farm income and indirectly through manufacturing and distribution. For many years, agricultural products were the principal exports through the Houston port, relinquishing that rank only after 1932 to the petroleum industry.

In terms of current employment, agricultural activities account for about 5,800 workers in the county, reflecting a 19-percent decline from the 1940 level but a minor gain since 1950. Agricultural employment presently is about 1.5 percent of total employment in Harris County. Similarly, direct income from agricultural activities is a very small percentage of the total for the county. Measured in terms of the number of farms (3,869), the land in farms (690,046 acres), the value of products sold ($192,226,302), or the number of cattle and calves on farms and ranches (113,426) as of 1954, Harris County accounted for about 1 to 2 percent of the State's agricultural industry.

There are several important trends in Harris County agricultural activities. The number of farms in the county has been reduced nearly 45 percent since 1940, while the average size of farms has more than doubled. This nationwide trend is a recognition of the mechanization of farming operations and the economies possible in large-scale farming. However, partly because of the rice farms (which are still relatively small) and partly because of the demand for land for industrial, highway, and residential use, the average size of farms in this area in 1954, at 178.4 acres, was only about one-third of the state-wide average. The total land in farms showed little change from 1940 to 1954, while the cropland harvested actually rose more than one-fifth.

The value of all crops sold by Houston area farmers has increased nearly eight times since 1940, with rice as the principal crop contributing to the increase. Rice production in Harris County expanded sharply from 1940 to 1950 but has fluctuated near the 1950 level since then. The Houston area produces approximately 8 percent of the state total. Rising use of land for rice farming has been a major reason for the gain in the number of cattle and calves in the area, since it is common practice to use rice land only 1 in 3 years; in the intervening years, cattle are grazed on the forage grown to revitalize the land.

Harris County ranks first in the number of cattle and calves on farms and ranches in the State of Texas, and this number has shown a 7-percent increase since 1940. The value of livestock and livestock products sold accounts for 43 percent of the value of all farm products sold in the county and has more than doubled since 1940. In contrast, livestock receipts at Houston's public stockyards moved down sharply from 1949 to 1954 with the onslaught of the drought but have since recovered to about the same level as in 1940.

Cotton production has shown an actual decline in the number of bales, from 9,970 in 1940 to 2,110 in 1957. This trend generally follows the state-wide movement of cotton from the eastern counties to the irrigated western sections but also reflects the restrictive effects of acreage allotments and quotas.

In terms of direct employment and personal income, agriculture shows a large decline in its relative position in Harris County. To a substantial degree, some of the jobs performed on the farm in the 1920's are now done in manufacturing, processing, and distribution industries. Productivity on farms has increased at a rapid rate, and the number of workers has steadily declined. These and other shifts of a like nature have tended to lower the apparent importance of agriculture; in reality, some of its functions have merely moved to other types of business — shifts that have benefited alike agriculture, manufacturing, and the consumer.

GOVERNMENT

All government activities in the Houston area, including schools, account for nearly 25,000 employees and about $130 million in direct wages and salaries. In terms of Houston's totals, these figures are about 7 percent of both employment and income, or substantially less than the comparable state percentages.

Federal Government activities in the area are principally connected with the San Jacinto Ordnance Depot and various field offices of Federal agencies, particularly those related to the navigation district. Ellington Air Force Base is the only major military installation in Harris County. However, these direct contributions are not a good measure of the impact of the Federal Government upon Houston's growth. The Ship Channel was partly financed and constructed with Federal help; in World War II, the Government assisted in the construction of the first steel plant in the area and

provided the funds for a number of chemical and rubber plants, although these have since been purchased by private companies.

Presently, Federal funds are important in financing Ship Channel maintenance, the construction of major highways, and the building of Houston's new airport terminal. Federal Government expenditures on the Houston Ship Channel from the beginning through 1957 total $39,627,670, but customs collections at the Port of Houston have returned more than four times this total. The Government is also a major purchaser of some of Houston's principal products, especially aviation gasoline and synthetic rubber.

State government offices in Houston consist of the usual division offices of the highway patrol, Texas Employment Commission, and others of similar nature. Schools, highway construction, and institutional maintenance receive financial aid from state funds.

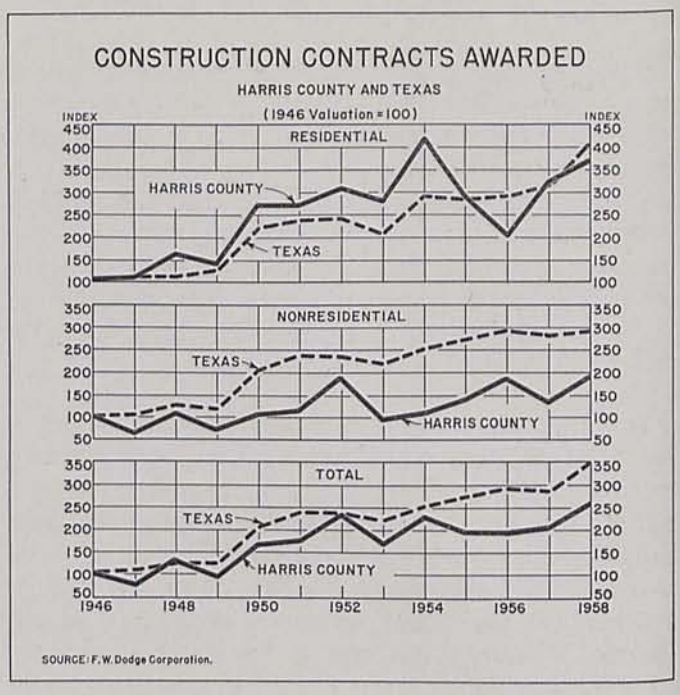
Local government in a large city is a big business, and Houston is no exception. The city government budget for 1958 totaled $52,363,893, or about $6 million above the 1957 level. There are 71 taxing districts in Harris County, 47 of which are nonschool districts, such as the navigation district. The numerous taxing authorities and the potential savings to be derived through the operation of one large government unit have led some Houstonians to conclude that Harris County and Houston should combine their governmental authorities into a single metropolitan area government.

Derivative Industries and Activities

Many other important activities in a large city are, in a sense, a result of the growth of the basic industries and population of the area. A few exert substantial influence in attracting new basic components, while others are the natural outgrowth of the development of a large urban center.

CONSTRUCTION

One of the most important industries within this derivative group is construction. To the extent that its output is geared to the needs of other industries and to the growth of the city, this is a service industry. From another standpoint, however, it is a basic industry since large Houston construction firms handling a world-wide business are providing a steady source of income by employment of skilled engineers and equipment operators and by substantial purchases of materials and specialized tools.



The industry directly employs about 41,000 workers, or almost 10 percent of the nonagricultural employment of the area. Since 1940, construction employment in Houston has more than doubled and currently accounts for nearly one-fifth of all state construction employment. Houston construction workers received about $136 million in wages and salaries during 1957, or 8 percent of the area's total wages and salaries and almost one-fifth of the state total.

Construction activities in the Houston area are heavily weighted by the development of new industrial plants. During 1958, the area accounted for almost 24 percent of nonresidential awards in Texas and 19 percent of the residential awards. Of the $318 million in total contracts awarded for new buildings in Houston in 1958, $144 million was for nonresidential buildings, and $174 million was for residential construction. Total building contract awards in the area have exceeded $200 million each year since 1950, reaching a peak in 1956 at $321,676,000, or more than 160 percent above the comparable level in 1946. The extensive building program of the chemical industry has been a major feature of the Houston construction industry.

In addition to the building awards noted above, there is a substantial amount of construction of public works and utilities. Houston accounted for 9 percent of all public works and utilities construction in Texas in 1956. In late 1958, the Texas Highway Department had

under way in Harris County 19 projects costing $32.5 million and had plans for 26 more projects to cost about $66 million.

Because of the mild climate, residential construction has been relatively cheap in Houston compared with northern areas of the country. The one-story, ranch-style home without basement or finished attic is the most common type of residence. These houses are usually well insulated and, recently, are being air-conditioned, even in the lower price class.

Sustaining the other segments of the construction industry has been a series of new developments. Educational and institutional building has followed the rise in population; and public works and utilities construction has been greatly stimulated by suburban developments, the greater use of utilities, and the need for better and wider streets, highways, and freeways. Commercial building has been accelerated by suburban shopping developments and the large new office, bank, and retail store construction in the postwar period.

Recent announcements of plans for new office and bank buildings, further street and freeway construction, utilities work to service the newly annexed areas, and more residential building mean a continuing stimulation to the Houston construction industry. Although industrial building has not recovered from cutbacks in plant and equipment expenditures during the recession, a number of large projects are under way or planned for the near future.

OTHER TRANSPORTATION FACILITIES

Rail service for Houston has been good since the turn of the century. Currently, six major interstate railroads enter the city, while the Port Terminal Railroad serves the Ship Channel. A terminal railroad handles traffic within the city limits for four of the railroads, but the other two have their own yard and terminal facilities. Freight service is termed quite adequate by most shippers, but passenger service is fading quickly. As in virtually all other areas of the Nation, passenger service to Houston has been uneconomical, and most of it is being discontinued. Airlines, bus lines, and private automobiles are handling most of the intercity moves of Houstonians. However, railroads are still a vital force in the city, contributing a means of mass freight movements and aiding in the industrial development of Houston through the organization of industrial parks along their rights of way.

Airline service to Houston has shown substantial improvement in the past few years and is generally held to be adequate, except to the northwest and west coast areas. The 10 airlines serving the city have about 162 flights per day. The airport has been modernized to include a new terminal opened in 1956, and both terminal and runway facilities are being expanded to handle jet airplanes.

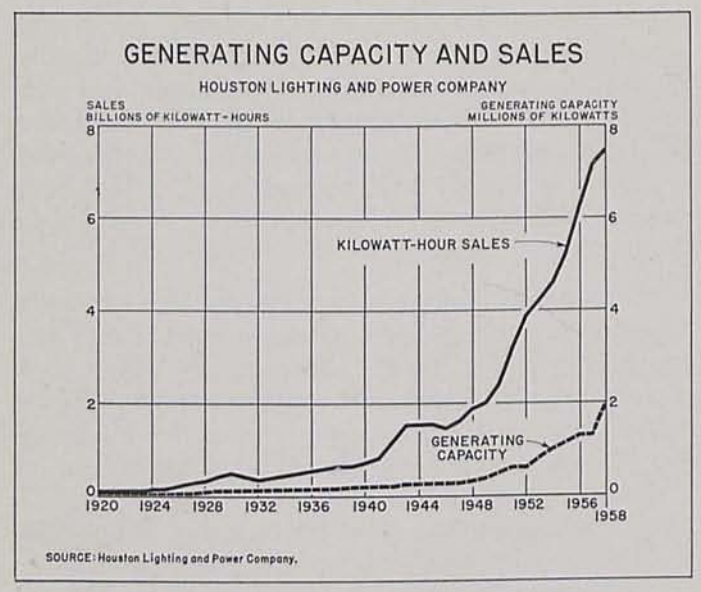
Highways to and from Houston are also generally adequate in terms of directional movement, but some are narrow and of poor surface quality and need a thorough modernization. An extensive system of freeways is under construction in and around the city. Houston is to be a major interchange point for two of the interstate highways — one running from Florida to California and the other, from Galveston to Minnesota. Construction on these interstate highways will be financed largely by the Federal Government. Houston is served by eight bus lines and 33 common-carrier truck lines.

Transportation facilities within Houston suffer from the same problems found in most major population centers. The increased use of automobiles has stimulated the growth of freeways and downtown garages, with the result that patronage of the transit system has declined steadily. The future appears to present no better picture for transit patronage unless the sheer volume of traffic causes such delays that riders return to the public buses. With the Central Business District fighting to maintain sales against the inroads of the mushrooming shopping centers, there is continued pressure for better roads and streets and more parking space in the downtown area, thus making it still more attractive to commuters to drive in private conveyances.

PUBLIC UTILITIES

The Houston area is served by one major electric system and two major gas systems. The presence of low-cost natural gas has been a significant factor in attracting new industries to the area and is one of the principal factors in the low cost of electric power. Adequate capacity to serve Houston's growing needs has been maintained by both the electric company and the gas companies. Natural gas pipeline capacity has quadrupled since 1940, and gas reserves are still readily available, despite a tremendous increase in use.

The electric company's plan to expand its generating capacity reflects a continued desire to hold a comfortable margin of safety over the expected needs of the area. In January 1959, the company's capacity totaled



1,986,000 kilowatts, or more than seven times the available capacity in 1946. With four new generating units under construction, to be completed by 1961, it appears that the electric power requirements of Houston will be easily satisfied.

In total, the transportation, communication, and utility companies of this area provide employment for 46,000 workers, which is about 11 percent of the nonagricultural employment total of Houston. Personal income to Houstonians in the form of wages and salaries totaled $213 million from these concerns in 1957.

TRADE AND SERVICES

Any large city needs a well-developed commercial life that will offer the goods and services required by its citizens. Houston appears to be well equipped for this type of economic activity. Wholesale trade in the city is quite active, principally because of the large number of merchant wholesalers and manufacturers' sales branches and offices. According to the Census of Business, there were 1,903 wholesalers in Harris County in 1954, whose payroll totaled $123,917,000. In contrast, the previous census in 1948 reports only 1,234 wholesalers, with a payroll of $73,264,000. The 1954 sales of the wholesalers were recorded for all but the merchandise agents and assemblers of farm products, the reported total aggregating $2,444,905,000, compared with $1,562,712,000 in 1948.

Merchant wholesalers accounted for 57 percent of the reported sales and 70 percent of the total number of establishments. Sales for this group constituted about one-fourth of the comparable state total. Within the merchant wholesaler group, farm product merchants and distributors of machinery, equipment, and supplies had the greatest sales totals. Among manufacturers' sales branches and offices, sales of distributors of primary metal products were the largest. Each of the three categories mentioned above developed a sales volume of more than $200 million in 1954. Manufacturers' sales branches and offices in Houston reported a sales volume in excess of 37 percent of the state total for this type of wholesaler.

Recent trends in wholesale activity in Houston reflect further growth. While it is not possible to ascertain the precise level of current sales by wholesalers, it is possible to obtain some indication of the rate of growth. The sales of a random sample of wholesalers showed a gain of about 20 percent from 1954 to 1957. With the expansion of the Houston trade area, additional increases can be expected.

Retail trade in Houston is divided among the establishments in the downtown area, the retail outlets in a large number of shopping centers at various suburban locations, and the downtown centers in the smaller towns and cities in Harris County. In the Houston metropolitan area, retail trade more than tripled from 1939 to 1948, rose about 50 percent from 1948 to 1954, and showed a further gain through 1957. However, in 1958, a moderate decline of about 5 percent was evident. Houstonians spend about one-half of their retail dollar at food, automotive, and general merchandise stores.

Shifts in consumer purchasing from downtown stores to suburban stores are particularly noticeable. From 1948 to 1954, sales at retail stores in the metropolitan area, less the Central Business District, rose 78 percent, while sales at stores within the Central Business District increased only 10 percent. However, these percentages do not tell the entire story. The stores in the Central Business District in 1954 still accounted for 32 percent of the retail sales in Harris County and, with respect to selected items, were considerably more important. In sales of apparel, automotive, and general merchandise stores, the Central Business District handled over 50 percent of the metropolitan area total.

Gains in retail trade by type of outlet from 1948 to 1954 varied considerably in the Houston area. The largest percentage increases in sales occurred at gasoline service stations, automotive establishments, and food outlets, while the smallest advances were at lumber establishments and apparel stores.

No large city can be without a substantial number of service firms, and Houston has its share. The Houston area accounts for approximately 17 percent of the sales of service establishments throughout the State. The 1954 Census of Business for selected services indicates a total sales volume of $168,735,000 from 5,304 service establishments. Of particular importance in this service establishment report is the concentration of activity in personal and business services. These two categories accounted for 50 percent of the total sales volume shown above. Also indicative of the importance of business services in Houston is the fact that, in this type of activity, the Houston concerns handled nearly 24 percent of the state total, or well above the average for all services covered in this report. Within the business service category, advertising and specialized business services were especially noteworthy.

The structure of Houston service concerns also reflects a smaller degree of concentration in amusement services, which account for only 12 percent of the Houston total, compared with 17 percent of the State's total service sales. A significant factor causing this lower rate of gain is the city's relatively small share of state income from motion-picture theaters and motion-picture distribution and services.

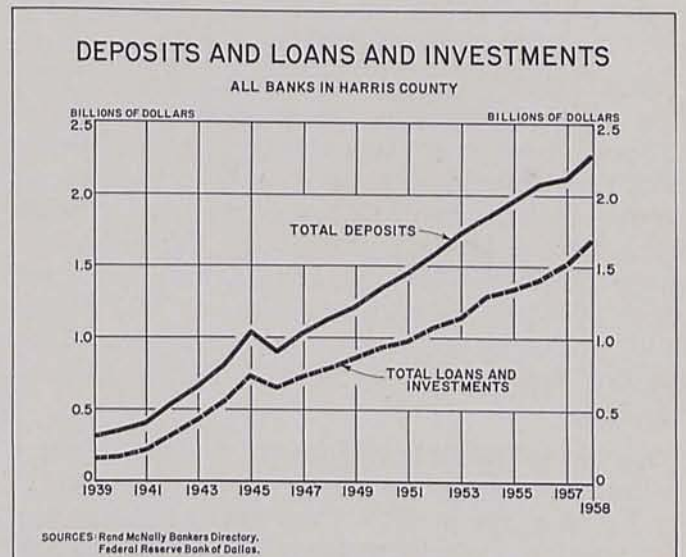
Hotel facilities in Houston, in terms of the number of rooms available, appear to be adequate, although some Houstonians believe that a new downtown hotel is needed and are considering its construction. Motels and tourist courts are increasing rapidly in this area, providing a large number of new rooms.

Medical services are one of the strongest points of the city, judging from the facilities available and those planned for the near future. Of special significance is the Texas Medical Center, which is being developed on the city's south side. A recent municipal election gave the center another major boost by selecting that area as the site of a new city-county charity hospital. This facility will join the growing complex of hospitals, schools, and laboratories at the center.

Another major area of services is the numerous establishments serving the oil industry. These include concerns specializing in fire fighting, drilling muds, oil well contracting, and tax and legal problems of the industry. Trade and services as a group provide employment for about 200,000 workers, or 46 percent of the Houston nonagricultural employment total. In terms of wages and salaries, these workers currently receive more than 33 percent of the Houston area total, or twice the amount in 1948. Wages and salaries to workers in trade concerns total $369 million, and employees in service activities received $210 million in 1957. Services are substantially more significant as an income source in Houston than in the State.

BANKING, INSURANCE, AND REAL ESTATE

The financial community in Houston has kept pace with the city's growth and, in fact, has provided some of the leadership which has been important to that growth. Financial institutions of virtually every type have undergone rapid expansion in Houston in the past two decades. The number of commercial banks rose from 21 in 1939 to 26 in 1945 and by December 1958 had reached a total of 54, despite some consolidations among the older institutions. This rapid expansion in the postwar period reflects chiefly the formation of new institutions as the city pushes out its boundaries and new shopping centers spring up.



Coincident with the expansion in the number of banks and in the area's economy, the banks' deposits grew from $315 million in 1939 to $2,296 million on December 31, 1958; their capital accounts almost kept pace with an expansion from $28 million in 1939 to $178 million on the recent year-end date. One measure of their service to customers has been the rapid rise in loans from $63 million in 1939 to $992 million in 1958. This increase of 16 times within the period is more than double the rate of gain in either capital accounts or deposits.

The loan portfolios of these banks reflect, in large measure, the business and industrial complex of the

area. Traditionally, the Houston banks have participated heavily in the financing of import and export transactions, and this type of loan has increased substantially with the growth in the volume of such business. Likewise, demand for loans from the petroleum industry has risen rapidly, in keeping with the marked expansion of this industry. Similar trends have been visible in loans to businesses and industries that are closely related to petroleum and chemicals. Although the foregoing types of loans have tended to predominate among the business and industrial categories, loan extensions to other types of businesses and industries have generally reflected their respective growth patterns. In line with the trend elsewhere, consumer instalment loans have shown a rapid advance in the postwar period, stemming from a marked rise in the use of consumer credit and the expansion in the banks' share in total consumer instalment credit. Among the other important characteristics of Houston banks may be cited the relatively high level of individual deposits, including a sizable proportion of time and savings deposits.

Within the city is located the Houston Branch of the Eleventh Federal Reserve District Bank, which serves 115 member banks in 43 counties of the gulf coast area. Since its establishment in 1919, the branch has shown growth commensurate with that of the member banks which it services. At the end of 1958, the reserve balances held for member banks in its territory aggregated about $261 million, compared with only $75 million in 1939. During the same period, the deposits of the member banks rose from $448,796,000 to $2,848,738,000.

Savings and loan associations and mortgage banking facilities have also grown rapidly in recent years; and in the Houston area in 1957, there were 14 savings and loan association members of the Home Loan Bank System, with total assets of $153,863,975. Insurance activity has become a big business in Houston. In addition to hundreds of agents, there are several home offices of southwestern insurance companies and the regional office of a large national insurance company. These companies provide a significant amount of investment capital and mortgage money to the Houston area.

Real-estate activities in Houston consist of the usual services, plus the extra ones required for the industrial growth of the area. Houston firms are prominent in mortgage banking. With the turnover of downtown property and the suburban developments of the past 10 years, there have been a large number of real-estate transactions.

Firms in finance, insurance, and real estate during 1957 employed about 20,000 workers and paid wages and salaries of about $89 million. This latter figure represents more than 5 percent of the total wages and salaries of the Houston area and almost 20 percent of such wages paid in the entire State. Since 1948, personal income derived from finance, insurance, and real-estate activities has increased more than 150 percent — a rate of advance about equal to that for the State.

Problems

Houston has shown truly impressive growth during the past 30 years. Measured by nearly any economic yardstick, the rate of development of the Houston area has placed it among the leading cities in the Nation. The recession of 1957-58 affected Houston adversely from two directions. First, with reduced crude oil drilling and production, the large oil field machinery and supply firms sustained a sharp loss in sales. Secondly, the durable goods industries of Houston, in company with those throughout the Nation, began to feel the effects of lower sales and, thus, commenced inventory liquidation. However, Houston's underlying strength showed through as construction awards rose in the home-building field and new chemical plant construction continued.

The city presents a picture of seemingly perpetual growth and progress. Its civic improvements and plans for further development are excellent. Its rates of growth in population, income, and industrialization are surpassed by no other city in the Southwest and by only a few cities in the entire Nation. Similarly, its cultural and recreational accomplishments have been marked, providing strong attractions for new businesses and industries.

Yet, behind this cultural, economic, and civic progress are a number of unresolved problems which Houston must face and overcome in the near future. Foremost among these is an uncertainty about the degree to which the oil industry will supply a further stimulus to Houston. This is not to say that some growth will not occur in the industry but, rather, that the growth is not likely to be the dominantly expansive force in the area which it has been for more than 30 years. To appraise the industry, it must be considered in the light of its component parts. Realistically, the oil industry is a series of industries, including the exploration, drilling, production, and refining of oil; the chemical industry; and the metal industries, which supply the other segments. The prospects for each of these industries are interconnected but very different.

The current outlook is probably the least promising for the domestic exploration, drilling, crude production, and refining segments of the industry — each of which has provided marked stimulation to the growth of the Houston area in the postwar period. Whether the stimulation from domestic exploration, drilling, and crude production can be maintained is dependent upon success in finding major new fields on the land areas; success in finding, and progress in developing, the petroleum resources under the continental shelf; and the effect of competition from foreign oils. While the refining industry is expected to benefit from the steadily increasing demand by the chemical industry for raw materials, its competition from foreign oil refined in other sections and from imports of refined products is likely to become more intense. Consequently, the refining industry's future is dependent, in large measure, upon its success in expanding southwestern markets and in meeting foreign competition successfully.

On the other hand, the extent to which the metal industries may suffer losses in sales to the domestic petroleum industry can be easily offset by foreign sales and through product diversification. In addition, the chemical industry is expected to continue to expand, taking advantage of further new product discoveries, as well as increasing uses of current products. Therefore, sustaining the expansion rate in Houston means supplementing the growth of the metal and chemical industries and supplanting the possible loss of stimulus from the other sectors of the oil industry. It is believed that any loss of stimulation in these areas could be counterbalanced by broadening the manufacturing base, thus further improving the diversity of the industrial complex.

Perhaps the most important means of diversifying the manufacturing segment is by concentrating upon the development of end-product manufacturers. Household goods made from wood, plastics, or steel would seem to be one logical choice. Another choice might be the development of manufacturers of end products from the chemical intermediates produced in the area. With the growth of Houston as a final market, industries which are primarily interested in locating near their market, instead of their sources of raw materials, should be encouraged to enter this area. Houston can offer a domestic market and raw materials in a fairly compact area, as well as access to South American markets.

In fact, another major developmental period appears to be commencing — one which could rank with the agricultural, oil, and chemical periods of the past. This new horizon is the trend toward local production, processing, and assembling of consumer goods. If Houstonians would avidly pursue their opportunities in this field, a whole new complex of small- to medium-sized manufacturers and distributors could be developed. Such growth would, in turn, further diversify the local economy and thereby reduce its dependence upon any single industry.

This frontier of Houston's economic development will provide the needed stimulus for additional growth and, at the same time, place in the area a new type of industry that will be complementary to its existing raw material-based industries. Except for the previously mentioned uncertainty concerning exploration, production, and refining of petroleum and the remote possibility that the chemical industry growth may slow in response to foreign and domestic competition, the basic industries of Houston are likely to continue to follow recent prerecession patterns. In other words, the industrial frontier of consumer goods would be, to a considerable extent, a net addition to Houston's arsenal of economic strength.

It will probably be difficult for Houston to attract industries which pay relatively low wages. The current wage scale provides a strong group of workers with above-average take-home pay, and, in the long run, this income strength may be more beneficial to Houston than the stability that would be obtained by expansion into the low-paying industries.

In its attempts to attract other industries and even to handle the expansion of existing firms, Houston faces another potential problem — that of an adequate water supply. Current estimates of supply related to requirements indicate a shortage developing by 1961. For several years, the city has been studying alternative sources of water supply and their relative costs. However, it takes time to develop new surface-water structures, and Houston has only a short time in which to accomplish the task. If the city vigorously pursues the recent moves to obtain water from the San Jacinto and Trinity Rivers, it is likely that, within a reasonable time, Houston's water needs could be met for many years.

Another problem, which Houston has recognized for some time, is the lack of zoning. Zoning is needed to protect residential areas, as well as to insure proper placement of the city's industrial growth. Planning for a smooth traffic flow is most difficult, as the authorities have no control over the location of new light industrial and commercial plants. Fortunately for Houston, the

damage from lack of zoning is still relatively minor; but in a few more years, the city's growth and development might so complicate the problem that zoning would be an empty gesture.

Also important to Houston, especially in terms of the initial impression upon a visitor to the city, is the downtown problem concerning a sizable share of the Central Business District. As is true in many other large cities, the focal point of Houston's downtown area has shifted, leaving in its wake an area of potential blight. Urban renewal projects or the concentrated efforts of enlightened Houstonians might save this area and, perhaps, make it a garden spot of the downtown district. Some plans have already been drawn; however, much more needs to be planned, with suitable action taken to implement the decisions.

Of secondary importance are the usual problems inherent in suburbanization — traffic, intracity transportation, and municipal services. These problems are present in nearly every large city; but because of the city's type and rapidity of growth, they may be magnified in Houston. The expansion of the city limits has created problems in servicing the newly encompassed areas, thus leading to considerable dissatisfaction on the part of some residents and industries in these areas. Houston is spread over a large area, and, for this reason, traffic control and transit operations are of special significance. The plans for solving these problems are generally good in so far as the construction of new freeways and thoroughfares is concerned, but the city does not seem to have made a decision on the future of transit operations. An imaginative but financially sound program needs to be developed to keep an efficient intracity transit system.

With reasonable efforts to correct the major problems, none should seriously hamper the economic progress of the Houston area. In view of Houston's history of successfully handling problems of similar magnitude, there is reason to believe that it will competently solve others. Houston's future rests with those who have the vision and courage to surmount its problems and shortcomings and to provide the leadership which will capitalize upon its advantages and opportunities.

This is the first of a series of articles on the four largest cities in the Eleventh Federal Reserve District. The three successive ones will discuss Dallas, San Antonio, and Fort Worth, respectively. Additional copies of this article may be obtained by addressing a request to either:

J. L. Cook
Vice President in Charge
Federal Reserve Bank Branch
1701 San Jacinto Street
Houston 2, Texas

Research Department
Federal Reserve Bank
of Dallas
400 South Akard Street
Dallas 2, Texas

BUSINESS REVIEW

BUSINESS, AGRICULTURAL, AND FINANCIAL CONDITIONS

Nonagricultural employment in the Eleventh District states was down moderately during February but was 1 percent higher than a year ago. Unemployment showed a small seasonal rise. Industrial production in Texas declined in February, with a strike in the important oil refining industry more than offsetting gains elsewhere. March production also was subject to conflicting forces but probably reflected stability.

Strength in soft goods sales caused February department store sales in the District to show a good year-to-year gain. In the first half of March, early Easter buying helped to maintain sales well above the 1958 level. Inventories at the end of February were slightly above a year ago for the first time in over a year, partly because of earlier preparations for the Easter buying season this year. New car registrations during February in the largest metropolitan areas of the District rose substantially over a year earlier but were below the preceding month.

Demand for petroleum products declined more than seasonally in February and early March. District crude oil production remained fairly steady, but refinery runs increased 6 percent. Despite record imports, stocks of crude oil and most refined products decreased moderately. A new program for mandatory control of imports significantly improves the outlook for the domestic petroleum industry.

The value of construction contracts awarded in the District states during January rose 29 percent over a year ago. Residential awards led the gain, but indicators of nonresidential construction were also rising.

Agricultural prospects in the District are somewhat less favorable than they were at this time in 1958. General rains are needed in most western sections, particularly wheat areas. In the eastern half of the District, intermittent rains have delayed soil preparation and planting of spring crops. Livestock generally remain in good condition.

Loan demand remained strong at the District's weekly reporting member banks between mid-February and mid-March. Business loans, real-estate loans, and consumer-type loans all registered gains. Deposits declined during the 4 weeks but on March 18 were almost 8 percent above the year-earlier level. The discount rate of the Federal Reserve Bank of Dallas was increased from 2½ percent to 3 percent, effective March 6.

Sales at the District's department stores during February were 12 percent above sales in the same month last year but were down 13 percent, or more than seasonally, from the high January level. A part of the month-to-month decline probably represents a normal reaction to the especially effective January sales promotions that were held this year. The seasonally adjusted sales index was 160 percent of the 1947-49 average in February, compared with 168 in January and the low point of 143 in February 1958.

DEPARTMENT STORE SALES AND STOCKS

(Preliminary percentage change in retail value)

Area	NET SALES			STOCKS (End of month)	
	Feb. 1959 from		2 mos. 1959 comp. with 2 mos. 1958	Feb. 1959 from	
	Jan. 1959	Feb. 1958		Jan. 1959	Feb. 1958
Total Eleventh District	—13	12	10	8	0
Corpus Christi	—7	8	8	10	0
Dallas	—12	9	8	9	2
El Paso	—5	14	11	16	13
Fort Worth	—13	10	8	8	—5
Houston	—16	13	11	5	—2
San Antonio	—18	15	12	10	2
Shreveport, La.	—14	12	10	0	—1
Waco	—11	13	10	4	—6
Other cities	—8	15	11	8	2

INDEXES OF DEPARTMENT STORE SALES AND STOCKS

Eleventh Federal Reserve District

(1947-49 = 100)

Date	SALES (Daily average)		STOCKS (End of month)	
	Unadjusted	Seasonally adjusted	Unadjusted	Seasonally adjusted
1958: February	112	143	158r	163r
December	277	160	152	163
1959: January	133	168	148	168
February	125p	160p	159p	164p

r — Revised.
p — Preliminary.

SALES AT FURNITURE STORES AND HOUSEHOLD APPLIANCE STORES

(Percentage change in retail value)

Line of trade by area	February 1959 from		2 mos. 1959 comp. with 2 mos. 1958
	Jan. 1959	Feb. 1958	
FURNITURE STORES			
Total Eleventh District	—1	7	2
Amarillo	—18	59	41
Austin	—21	24	19
Dallas	—21	0	8
Houston	10	—4	—12
Lubbock	—63	8	24
San Antonio	14	5	—3
Shreveport, La.	2	10	7
Wichita Falls	—39	38	27
Other cities	19	11	2
HOUSEHOLD APPLIANCE STORES			
Total Eleventh District	—26	5	—
Dallas	—26	0	—

Sales in early March were also well above a year ago, partly because of the influence of the earlier Easter date this year. Through the week ended March 14, cumulative sales in 1959 were 9 percent above a year earlier.

A year-to-year gain was recorded during February in each of the District's metropolitan areas for which separate sales data are available. These gains ranged from 8 percent in Corpus Christi to 15 percent in San Antonio. According to reports on sales by types of goods at a small group of department stores, the increase in total sales during February again reflected substantial strength in soft goods sales. Particularly notable were advances of 21 percent and 11 percent, respectively, in sales of women's and misses' dresses and women's and misses' accessories. Sales of consumer durables continued slow at these stores, with sales of major appliances 11 percent below those of February 1958 and radio, phonograph, and television sales down 2 percent.

Preliminary figures indicate that District department store inventories on hand at the end of February were fractionally above the year-earlier level for the first time since November 1957. This gain was probably due, at least in part, to the fact that stocks had been built up in preparation for the earlier Easter buying season in 1959. As in recent months, new orders placed during February and total orders outstanding at the month end were above a year ago, showing increases of 32 percent and 20 percent, respectively.

Total new car registrations in the Dallas, Fort Worth, Houston, and San Antonio metropolitan areas during February were lower than in January but were 14 percent above February 1958. The largest year-to-year increase was in the Dallas area, where registrations rose 21 percent. Gains recorded in the other areas were 12 percent for Fort Worth, 11 percent for Houston, and 8 percent for San Antonio. Total registrations in January and February were 11 percent greater than during the first 2 months of 1958.

Current agricultural prospects in the District generally are less favorable than prospects at this time last year. Winter wheat north of the Canadian River in the Panhandle of Texas has begun to grow as a result of warmer temperatures, but the crop is in need of rain. In eastern New Mexico and in areas south of the Canadian River in Texas and extending eastward to about the Blacklands, dry-land wheat is badly in need of moisture, and stands in many fields are deteriorating rapidly. High winds during the past month have been particularly harmful.

In contrast, oats and other small grains in eastern sections of the District are growing rapidly, and prospects are excellent; however, insect damage in a few areas has been serious. Cotton, corn, and sorghum planting made excellent progress in the latter part of March, overcoming much of the previous delays resulting from wet soils. In south Texas, corn planting is about complete, and over one-half of the acreage in the Blacklands has been seeded. Planting also is well advanced in coastal areas and in east Texas.

A significant portion of the intended sorghum acreage has been seeded in early areas of the District. Progress in cotton planting has been very good, and over one-half of the crop has been seeded in the Lower Valley of Texas. Those plantings which are up to a stand are making good growth. Cotton seeding is under way in other south Texas areas as soil temperatures moderate, and preseason irrigation of cotton fields in the High Plains is progressing at a brisk pace.

A recent report of the United States Department of Agriculture indicates that farmers in the District states intend to plant smaller acreages of corn, oats, hay, and peanuts this year as compared with 1958. On the other hand, southwestern farmers plan to increase acreages of rice, barley, and sorghums. In the Nation, increased plantings are noted for corn, while farmers intend to plant fewer acreages of sorghums.

Shipment of winter vegetables is active in commercial areas of the Lower Valley. Tomatoes and onions continue to show the effects of blight, and the progress of the crops has not been very satisfactory. In east Texas, tomatoes are being set in cold frames, and some plants are going directly to the fields; in north Texas onion areas, growth of plants has been satisfactory. Production of winter vegetables in Texas for the fresh market is estimated to be 36 percent below output in 1958 and one-third below the 1949-57 average.

Livestock forage conditions improved sharply in eastern sections of the District as clover, grasses, and small grains made rapid development. In these areas, supplemental feeding is negligible. Elsewhere in the District, stockmen are relying on cake and hay to help maintain cattle. In a few sections of New Mexico and west Texas, cured forage on ranges is still ample, although considerable losses have occurred because of high winds and range fires. Moisture is urgently needed throughout most of the western sections of the District to promote growth of spring forage. In the Plateau and Trans-Pecos areas of Texas, goat shearing is almost complete, and shearing of sheep is well advanced. Feed conditions in all of the range states in the District on March 1 were less favorable than at the same time a year ago.

CASH RECEIPTS FROM FARM MARKETINGS

Five Southwestern States and United States

(Dollar amounts in thousands)

Area	1958	1957	Percentage increase
Arizona	$ 394,543	$ 374,447	5
Louisiana	359,601	339,815	6
New Mexico	219,996	197,633	11
Oklahoma	627,734	446,942	40
Texas	2,294,139	1,734,765	32
Total	$ 3,896,013	$ 3,093,602	26
United States	$33,206,000	$29,757,131	12

SOURCE: United States Department of Agriculture.

Prices received by Texas farmers and ranchers for all farm commodities showed little change during the month ended February 15. The all-farm product price index, at 279 percent of the 1910-14 base, compared with 280 a month earlier and 269 a year ago. Farm marketings in the District states during 1958 totaled $3,896,013,000, or 26 percent more than in 1957. Government payments, amounting to $209,002,000, boosted total cash farm income in the District states to $4,105,015,000, or an all-time high; this is the first time cash farm income in these states has exceeded $4 billion.

Loan demand at weekly reporting banks in the Eleventh District remained strong between mid-February and mid-March. Gross loans (excluding interbank loans) rose $23.5 million, about two-thirds of which represented business loan expansion. Except for a brief period of liquidation during January, business loans have been rising persistently since July of last year. In recent weeks, gains in these loans have been weighted heavily by the increased borrowings of sales finance companies, construction firms, and public utilities. However, loans to commodity dealers and petroleum borrowers have declined.

Agricultural loans continued to decrease during the 4 weeks ended March 18, but the remaining loan categories registered gains. The increase in real-estate loans represented a reversal of the downward movement which began in late December, and expansion in the residual category "all other loans" — mostly consumer loans — extended the week-to-week gains recorded for this category since late October.

Time deposits at the weekly reporting member banks have resumed the downward trend that was interrupted in February. During the 4 weeks ended March 18, time balances decreased $12.9 million, and demand accounts showed a larger decline of $21.1 million. Nevertheless, total deposits on March 18 were almost 8 percent above the year-earlier level.

Investment liquidation of $61.9 million paralleled the contraction in deposits during the 4-week period. Liquidation of Treasury bills more than accounted for the over-all reduction in investment holdings. Holdings of Treasury notes, Government bonds, and non-Government investments registered moderate gains.

In February, District member banks held daily average free reserves of $36.4 million, which is moderately higher than in the preceding month although appre-

CONDITION STATISTICS OF WEEKLY REPORTING MEMBER BANKS IN LEADING CITIES

Eleventh Federal Reserve District

(In thousands of dollars)

Item	Mar. 18, 1959	Feb. 18, 1959	Mar. 19, 1958
ASSETS			
Commercial and industrial loans	$1,687,638	$1,671,694	$1,511,330
Agricultural loans	35,724	38,375	30,144
Loans to brokers and dealers in securities	21,783	21,802	29,445
Other loans for purchasing or carrying securities	183,944	178,702	167,509
Real-estate loans	219,434	217,882	199,386
Loans to banks	22,458	13,030	79,324
All other loans	664,950	661,501	627,742
Gross loans	2,835,931	2,802,986	2,644,880
Less reserves and unallocated charge-offs	48,785	48,936	44,937
Net loans	2,787,146	2,754,050	2,599,943
U. S. Treasury bills	48,599	117,680	90,419
U. S. Treasury certificates of indebtedness	127,908	129,273	64,696
U. S. Treasury notes	269,233	264,972	200,463
U. S. Government bonds (inc. gtd. obligations)	918,088	914,734	882,721
Other securities	346,870	345,979	281,409
Total investments	1,710,698	1,772,638	1,519,708
Cash items in process of collection	499,380	486,330	403,058
Balances with banks in the United States	466,904	504,827	502,208
Balances with banks in foreign countries	1,695	1,734	1,617
Currency and coin	48,553	47,755	46,781
Reserves with Federal Reserve Bank	613,185	587,110	565,363
Other assets	173,983	185,106	187,711
TOTAL ASSETS	6,301,544	6,339,550	5,826,389
LIABILITIES AND CAPITAL			
Demand deposits			
Individuals, partnerships, and corporations	2,945,597	2,890,952	2,776,306
United States Government	88,030	147,987	114,175
States and political subdivisions	260,259	244,909	196,131
Banks in the United States	974,300	948,985	955,186
Banks in foreign countries	15,463	14,914	14,813
Certified and officers' checks, etc	92,108	149,156	66,651
Total demand deposits	4,375,757	4,396,903	4,123,262
Time deposits			
Individuals, partnerships, and corporations	1,087,512	1,087,271	896,267
United States Government	7,130	7,130	12,125
Postal savings	421	421	421
States and political subdivisions	178,847	186,932	205,778
Banks in the U. S. and foreign countries	1,847	6,871	1,178
Total time deposits	1,275,757	1,288,625	1,115,769
Total deposits	5,651,514	4,785,528	5,239,031
Bills payable, rediscounts, etc.	57,806	41,700	15,000
All other liabilities	70,797	90,517	94,527
Total capital accounts	521,427	521,805	477,831
TOTAL LIABILITIES AND CAPITAL	6,301,544	6,339,550	5,826,389

RESERVE POSITIONS OF MEMBER BANKS

Eleventh Federal Reserve District

(Averages of daily figures. In thousands of dollars)

Item	February 1959	January 1959	February 1958
RESERVE CITY BANKS			
Reserve balances	$ 561,900	$ 567,572	$ 553,762
Required reserves	552,473	559,600	540,926
Excess reserves	9,427	7,972	12,836
Borrowings	17,175	28,765	1,464
Free reserves	—7,748	—20,793	11,372
COUNTRY BANKS			
Reserve balances	464,323	465,734	467,332
Required reserves	416,155	416,695	414,833
Excess reserves	48,168	49,039	52,499
Borrowings	3,983	2,020	2,206
Free reserves	44,185	47,019	50,293
MEMBER BANKS			
Reserve balances	1,026,223	1,033,306	1,021,094
Required reserves	968,628	976,295	955,759
Excess reserves	57,595	57,011	65,335
Borrowings	21,158	30,785	3,670
Free reserves	36,437	26,226	61,665

ciably below the year-earlier level. Reserve balances declined $7.1 million, and required reserves decreased $7.7 million. Thus, excess reserves remained about the same, and a $9.6 million reduction in borrowed funds produced a net gain in free reserves. The principal change occurred at reserve city banks, where net borrowed reserves decreased from $20.8 million to $7.7 million as borrowings were reduced substantially.

Earning assets of the Federal Reserve Bank of Dallas rose $5.1 million during the 4 weeks ended March 18, reflecting principally an increase in discounts for member banks. The Dallas Bank's Federal Reserve notes in actual circulation and its gold certificate reserves declined moderately. On March 18, notes in circulation were approximately 7 percent above a year ago.

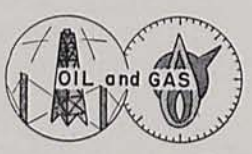
CONDITON OF THE FEDERAL RESERVE BANK OF DALLAS

(In thousands of dollars)

Item	March 18, 1959	Feb. 18, 1959	March 19, 1958
Total gold certificate reserves	$ 779,837	$ 783,026	$751,996
Discounts for member banks	18,116	11,041	900
Other discounts and advances	952	952	0
U. S. Government securities	995,698	997,686	918,477
Total earning assets	1,014,766	1,009,679	919,377
Member bank reserve deposits	1,013,773	1,004,943	964,601
Federal Reserve notes in actual circulation	765,773	777,270	712,990

Effective March 6, the Federal Reserve Bank of Dallas, along with three other Reserve banks, raised its discount rate from 2½ percent to 3 percent. Subsequently, the remaining Reserve banks raised their rates to the higher level.

Subscription books were open on March 23 for the Treasury's offering of $1.5 billion of new 4-percent notes due May 15, 1963, and for the offering of $500 million of additional 4-percent bonds to mature October 1, 1969. As a part of its March cash financing, the Treasury also auctioned, on March 26, $2.0 billion of 289-day Treasury bills.



The petroleum industry in the first half of March performed roughly in conformance with seasonal expectations. District crude oil production was about equal to the February total, and refinery runs showed an increase; however, demand for petroleum products declined sharply because of reduced demand for heating oils. Total petroleum imports reached new record highs before the imposition of mandatory controls on March 11.

Sharply reduced demand for distillate fuel oil and kerosene in early March depressed total demand for petroleum products to 7 percent under the February level. Total demand, declining somewhat more than seasonally, was only slightly above a year ago. Warmer temperatures across the Nation resulted in a sharp decrease in distillate demand to a level 5 percent below the comparable period last year. Gasoline demand, which averaged nearly 7 percent higher than a year ago, exceeded earlier demand estimates and provided a basis for advances in gasoline prices in March.

Total crude runs to refinery stills in the United States rose slightly during the first part of March, despite the decline in product demand. The settlement of a strike at a major gulf coast refinery stimulated a 6-percent increase in District refinery runs, which averaged 2,307,000 barrels per day to show an increase of 11 percent over a year ago. Substantial supplies of refined products were also provided by imports; averaging 1,145,000 barrels daily in the 5-week period ended March 13, imports were 71 percent higher than a year earlier.

Total stocks of refined products in the United States failed to evidence the normal seasonal decline and totaled 363,164,000 barrels on March 13. At 210,290,000 barrels, gasoline stocks were 3 percent lower than the excessive total last year but are still considered too high for this season. Crude oil stocks of 256,001,000 barrels on March 7 were 10 percent below a year ago. Imports of crude oil in early March were running slightly higher than a year earlier.

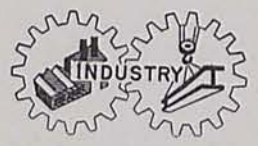
Crude oil production in the District averaged 3,217,000 barrels per day in the first half of March, with Texas production limited to 12 days. District production was slightly less than in February but was 20 percent greater than a year ago.

Drilling activity in the District continues below last year's rate and is considerably below the rate in 1957. From January 1 through March 7, 4,019 wells were completed in 1959, compared with 4,235 in the corresponding period in 1958 and 4,866 in 1957. Well completions increased in North Louisiana and Texas Districts 1, 2, 4, and 8 but decreased in the remainder of Texas and in New Mexico.

An event of major industry significance was the commencement of mandatory controls on imports of crude oil and unfinished products on March 11 and finished products on April 1. Licenses which have been issued authorize the importation of 937,000 barrels per day of crude oil and refined products through June 30, 1959, when the quotas are subject to revision. Probable special additional allocations for Canadian imports could add up to 70,000 barrels per day to this total. In the last half of 1958, imports of crude oil and unfinished products averaged 1,099,000 barrels per day.

It is estimated that import quotas for refined products, with the exception of residual oil, will be 60,000 barrels per day, or roughly 20 percent below their rate of importation in the last half of 1958. Imports of residual oil may be limited to about 400,000 barrels daily, or almost the same as residual imports from June through December 1958.

The new program of import controls has not resulted in increased allowable crude oil production in Texas, partially because April production is traditionally affected by a lag between the rise in summer demand for petroleum products and the decline in winter demand. Allowable production in the State in April, based on 11 days, would average 3,065,000 barrels per day, representing a 3-percent decline from March. Crude oil production in April 1958 averaged 2,277,000 barrels per day.



Employment of nonfarm workers in the District states during February totaled 4,208,800, reflecting a moderate decline from the 4,223,900 in January. The refinery strike at Port Arthur, which idled nearly 5,000 workers, was a major depressing influence on February employment. However, employment in nonmanu-

NONAGRICULTURAL EMPLOYMENT

Five Southwestern States[1]

Type of employment	Number of persons			Percent change Feb. 1959 from	
	February 1959e	January 1959	February 1958r	Jan. 1959	Feb. 1958
Total nonagricultural wage and salary workers	4,208,800	4,223,900	4,164,300	—0.4	1.1
Manufacturing	756,200	758,800	768,800	—.3	—1.6
Nonmanufacturing	3,452,600	3,465,100	3,395,500	—.4	1.7
Mining	248,400	249,700	261,300	—.5	—4.9
Construction	304,800	306,200	274,300	—.5	11.1
Transportation and public utilities	389,700	393,100	402,100	—.9	—3.1
Trade	1,020,100	1,026,400	1,006,200	—.6	1.4
Finance	186,600	186,000	181,700	.3	2.7
Service	494,400	495,400	488,200	—.1	1.3
Government	808,600	808,300	781,700	.0	3.4

[1] Arizona, Louisiana, New Mexico, Oklahoma, and Texas.
e — Estimated.
r — Revised.
SOURCES: State employment agencies.
Federal Reserve Bank of Dallas.

facturing industries generally showed declines. A slow increase in outdoor activities failed to provide the normal job gains in construction and services. Trade employment accounted for the largest seasonal decline, while government employment rose moderately. Compared with February 1958, the job total reflected an increase of 1 percent.

Unemployment in Texas during February rose slightly to 191,500, which is 200 higher than in January but is about 1 percent less than a year earlier. A new report on Oklahoma unemployment shows a small month-to-month unemployment increase in that State also.

Industrial production in Texas declined 2 points to an adjusted index level of 166 during February. Gains in such industries as metals and machinery manufacturing were more than offset by a few sharp declines, such as the loss in the strike-affected refining industry, while crude oil production was seasonally constant. Industrial production in the District area was subject to a number of conflicting forces during March. Most industries appeared to be expanding output, and production in the important petroleum refining industry rose substantially as a result of the settlement of the Port Arthur refinery strike. On the other hand, Texas crude oil production allowables for March reflected a small seasonally adjusted decline. Also, layoffs of an additional 2,000 aircraft workers in the Dallas area were scheduled during March through July.

A somewhat greater measure of stability is in prospect for the aircraft and related industries of the Dallas-Fort Worth area, based on military spending plans for the fiscal year beginning July 1. In addition, within the past month, a Fort Worth area helicopter manufacturer received military orders totaling $23 million.

INDUSTRIAL PRODUCTION

(Seasonally adjusted indexes, 1947-49 = 100)

Area and type of index	February 1959p	January 1959	December 1958	February 1958
TEXAS				
Total industrial production	166	168r	167	157
Total manufactures	197	201	197	185
Durable manufactures	235	234r	228	220r
Nondurable manufactures	179	186r	183	169r
Minerals	137	137r	139r	129r
UNITED STATES				
Total industrial production	144	143	142	130
Total manufactures	146	145	144	131
Durable manufactures	155	153r	152	137
Nondurable manufactures	138	137	135	125
Minerals	124	123r	123	118

p — Preliminary.
r — Revised.
SOURCES: Board of Governors of the Federal Reserve System.
Federal Reserve Bank of Dallas.

Construction contract awards in the District states during January rose 20 percent over December and 29 percent over a year ago. Residential awards led the gains, but nonresidential construction contracts also increased. The *Texas Contractor* indicates that nonresidential construction expanded further during February. Strong demands for building materials also reflect the high level of construction activity in the region. In the West South Central States of Arkansas, Louisiana, Oklahoma, and Texas, January retail lumber sales were 25 percent higher than a year earlier, and new orders to southern pine mills were up 12 percent.

With respect to the availability of credit for home building, a recent report by the FHA indicates that demand by investors for mortgages continued fairly strong in February, with secondary market prices for typical FHA mortgages on March 1 averaging $97.30 per $100 of mortgage amount in the Southwest — or about unchanged from a month earlier.

Commercial and industrial building awards in the District states during 1958, at $459 million, were 25 percent under the 1957 total, compared with a decrease of 28 percent for the Nation, according to detailed data recently made available by the *Engineering News-Record*. Industrial building awards in the region showed a sharp decline of 32 percent, but this reflected greater strength than the corresponding national decline of 43 percent. These estimates are in contrast with earlier, indirect indications of substantially greater strength in southwestern industrial building.

Future business construction prospects may be brighter. The backlog of industrial and commercial construction in the District states is estimated by the *Engineering News-Record* to have been $6.9 billion at the end of 1958, or up nearly 8 percent from a year earlier, compared with a gain of 7 percent for the Nation. All of this increase in the region's backlog was accounted for by commercial building, as the backlog of industrial building was down 1 percent.

Plant expansion in the important Texas chemical industry is scheduled for some decline during the 1959-60 period, according to the Manufacturing Chemists' Association. Nevertheless, proposed expenditures remain very large, and the construction of a major $25 million ethylene plant at Beaumont was announced recently.

BANK DEBITS, END-OF-MONTH DEPOSITS AND ANNUAL RATE OF TURNOVER OF DEPOSITS

(Dollar amounts in thousands)

Area	Debits to demand deposit accounts[1]			Demand deposits[1]			
		Percentage change from			Annual rate of turnover		
	February 1959	Jan. 1959	Feb. 1958	Feb. 28, 1959	Feb. 1959	Jan. 1959	Feb. 1958
ARIZONA							
Tucson	$ 209,305	—10	30	$ 124,758	20.3	22.7	18.2
LOUISIANA							
Monroe	67,676	—16	2	50,543	15.7	18.4	15.1
Shreveport	282,308	—14	7	184,342	18.6	21.6	16.1
NEW MEXICO							
Roswell	32,273	—16	9	31,403	12.2	14.5	12.6
TEXAS							
Abilene	93,287	—5	21	64,011	17.4	18.1	15.5
Amarillo	195,874	—12	20	114,667	19.8	21.5	18.1
Austin	188,724	—4	14	152,658	15.1	16.1	15.8
Beaumont	143,122	—12	1	108,172	16.0	18.1	15.4
Corpus Christi	173,300	—16	2	114,035	18.1	20.9	18.4
Corsicana	15,070	—25	12	21,513	8.6	11.0	7.6
Dallas	2,305,495	—16	13	1,149,815	24.1	27.1	24.6
El Paso	328,233	—13	21	173,215	22.2	25.3	21.2
Fort Worth	713,512	—13	15	370,250	22.9	25.8	21.2
Galveston	80,607	—6	—7	62,052	15.1	15.8	15.0
Houston	2,327,075	—10	11	1,283,063	22.1	24.0	21.2
Laredo	24,641	—9	4	21,464	13.7	14.6	13.3
Lubbock	174,604	—28	15	122,013	16.7	22.3	16.8
Port Arthur	53,899	—21	—14	44,761	14.3	17.5	15.8
San Angelo	47,536	—12	12	45,311	12.6	14.4	12.5
San Antonio	523,254	—11	10	390,031	16.2	17.9	16.6
Texarkana[2]	20,205	—8	20	17,237	14.0	15.2	12.6
Tyler	80,970	—13	11	60,226	15.8	17.5	14.5
Waco	93,729	—14	11	70,484	15.8	17.9	15.6
Wichita Falls	103,895	—13	19	106,885	11.5	12.5	10.2
Total—24 cities	$8,278,594	—13	12	$4,882,909	20.4	22.8	19.8

[1] Deposits of individuals, partnerships, and corporations and of states and political subdivisions.

[2] These figures include only one bank in Texarkana, Texas. Total debits for all banks in Texarkana, Texas-Arkansas, including one bank located in the Eighth District, amounted to $41,755,000 for the month of February 1959.

VALUE OF CONSTRUCTION CONTRACTS AWARDED

(In thousands of dollars)

Area and type	January 1959	December 1958	January 1958
FIVE SOUTHWESTERN STATES[1]	$ 299,277	$ 249,502	$ 231,785
Residential	159,961	124,843	101,319
All other	139,316	124,659	130,466
UNITED STATES	2,319,167	2,281,881	2,066,059
Residential	1,021,516	981,012	777,423
All other	1,297,651	1,300,869	1,288,636

[1] Arizona, Louisiana, New Mexico, Oklahoma, and Texas.
SOURCE: F. W. Dodge Corporation.

CRUDE OIL: DAILY AVERAGE PRODUCTION

(In thousands of barrels)

Area	February 1959[1]	January 1959[1]	February 1958[2]	Change from January 1959	Change from February 1958
ELEVENTH DISTRICT	3,250.7	3,212.0	3,115.1	38.7	135.6
Texas	2,881.9	2,848.0	2,748.7	33.9	133.2
Gulf Coast	550.7	546.2	532.6	4.5	18.1
West Texas	1,291.3	1,271.6	1,211.0	19.7	80.3
East Texas (proper)	161.9	161.0	162.8	.9	—.9
Panhandle	108.0	105.0	110.6	3.0	—2.6
Rest of State	770.1	764.2	731.7	5.9	38.4
Southeastern New Mexico	253.2	248.6	256.5	4.6	—3.3
Northern Louisiana	115.5	115.4	109.9	.1	5.6
OUTSIDE ELEVENTH DISTRICT	3,943.1	3,902.1	3,693.9	41.0	249.2
UNITED STATES	7,193.8	7,114.1	6,809.0	79.7	384.8

SOURCES: [1] Estimated from American Petroleum Institute weekly reports.
[2] United States Bureau of Mines.

CONDITION STATISTICS OF ALL MEMBER BANKS

Eleventh Federal Reserve District

(In millions of dollars)

Item	Feb. 25, 1959	Jan. 28, 1959	Feb. 26, 1958
ASSETS			
Loans and discounts	$ 4,575	$ 4,532	$4,167
United States Government obligations	2,720	2,759	2,323
Other securities	842	816	677
Reserves with Federal Reserve Bank	930	985	973
Cash in vault[e]	142	144	131
Balances with banks in the United States	1,012	1,029	1,021
Balances with banks in foreign countries[e]	2	2	1
Cash items in process of collection	479	492	433
Other assets[e]	267	289	270
TOTAL ASSETS[e]	10,969	11,048	9,996
LIABILITIES AND CAPITAL			
Demand deposits of banks	1,046	1,120	1,014
Other demand deposits	6,777	6,780	6,276
Time deposits	2,128	2,108	1,753
Total deposits	9,951	10,008	9,043
Borrowings[e]	27	53	12
Other liabilities[e]	113	114	122
Total capital accounts[e]	878	873	819
TOTAL LIABILITIES AND CAPITAL[e]	10,969	11,048	9,996

e — Estimated.

GROSS DEMAND AND TIME DEPOSITS OF MEMBER BANKS

Eleventh Federal Reserve District

(Averages of daily figures. In millions of dollars)

Date	GROSS DEMAND DEPOSITS			TIME DEPOSITS		
	Total	Reserve city banks	Country banks	Total	Reserve city banks	Country banks
1957: February	$7,271	$3,461	$3,810	$1,450	$ 770	$680
1958: February	7,297	3,481	3,816	1,729	915	814
October	7,615	3,744	3,871	2,106	1,149	957
November	7,828	3,832	3,996	2,090	1,131	959
December	7,999	3,931	4,068	2,088	1,125	963
1959: January	8,106	3,952	4,154	2,090	1,106	984
February	7,858	3,808	4,050	2,117	1,119	998

BUILDING PERMITS

Area	NUMBER		VALUATION (Dollar amounts in thousands)		Percentage change: Feb. 1959 from		Percentage change: 2 mos. 1959 comp. with
	Feb. 1959	2 mos. 1959	Feb. 1959	2 mos. 1959	Jan. 1959	Feb. 1958	2 mos. 1958
ARIZONA							
Tucson	381	701	$ 1,318	$ 2,421	19	—30	—32
LOUISIANA							
Shreveport	382	744	3,198	5,210	59	88	12
TEXAS							
Abilene	198	491	2,541	4,966	5	149	114
Amarillo	239	570	2,217	7,724	—60	57	134
Austin	390	658	5,102	9,371	20	105	56
Beaumont	257	528	1,391	2,679	8	37	39
Corpus Christi	70	154	1,520	3,383	—18	—54	—26
Dallas	1,780	3,553	14,340	26,434	19	49	35
El Paso	554	1,061	4,785	9,197	8	15	16
Fort Worth	665	1,253	4,334	7,401	41	53	—9
Galveston	80	167	243	480	3	10	27
Houston	1,302	2,772	14,902	33,812	—21	—12	6
Lubbock	359	678	6,522	10,059	84	76	76
Port Arthur	104	216	680	1,154	43	115	0
San Antonio	1,220	2,449	4,658	9,446	—3	3	25
Waco	199	398	994	2,530	—35	65	55
Wichita Falls	109	268	871	2,089	—28	72	184
Total—17 cities	8,289	16,661	$69,616	$138,356	1	24	25