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CRUDE OIL EXPLORATION AND PRODUCTION IN THE SOUTHWEST

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The Southwest and oil! Oil and the Southwest! The one generally is associated with the other. It is understandable that this relationship should exist, since for 50 years the Southwest has been an important oil-producing region, and for almost 30 years it has been the principal source of supply of the Nation's petroleum needs.

During the 20th century, the Southwest's oil industry has developed from practically nothing to a tremendous, complicated, and highly technical industry. All phases of the oil industry are represented in the Southwest — production, refining, transportation, and marketing. Nevertheless, the major emphasis in this region has been on production.

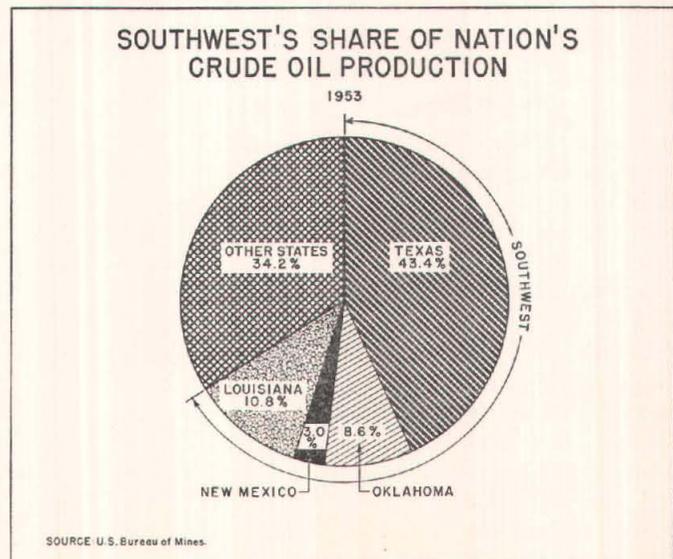
The first oil production of consequence in the Southwest occurred at Corsicana, Texas, where oil was discovered in 1894 while drilling for water. This field, however, was merely a prelude to the development of the region's oil resources. It was the blowing-in of the tremendous gusher at Spindletop, near Beaumont, on January 10, 1901, which opened up the Southwest to oil exploration. This discovery well, flowing at an initial rate of 75,000 to 100,000 barrels per day (or about one-half the total of all other wells in the Nation), stirred world-wide interest and made people aware of the region's great oil potentialities.

For several years after the Spindletop discovery, exploration tended to be concentrated on the Gulf Coast, but the discovery of the huge Glenn Pool near Tulsa in 1905 shifted attention from the Gulf Coast to Oklahoma. Many other important discoveries were made in Oklahoma in subsequent years, and this State led the Southwest in oil production from 1906 to 1928. In the latter year, Texas forged ahead and, since, has maintained its position as the largest producing state. Oil was discovered in Louisiana as early as 1902; New Mexico, however, was the last of the four southwestern states to have production, with the first commercial development of its oil resources occurring in 1924.

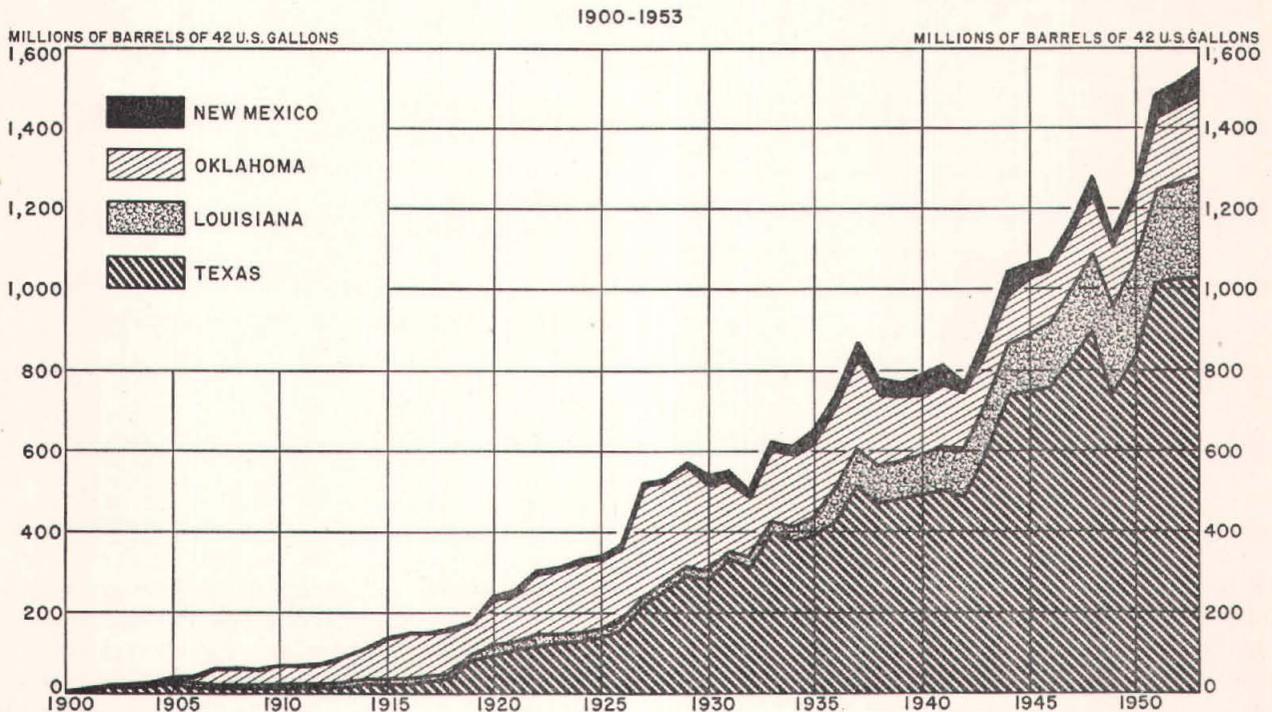
Oil production in the Southwest has shown an almost steady increase during the past half century. While production in the individual states generally has followed a rising trend, the growth pattern has not been as persistent as that of the region as a whole. Three of the four states — Texas, Louisiana, and New Mexico — posted new highs in production last year; Oklahoma's peak production was reached in 1927. In the postwar years, all of these southwestern states have experienced marked increases in production.

Total crude oil production in the four southwestern states in 1953 amounted to 1,553,000,000 barrels, representing 66 percent of the Nation's production and 33 percent of the world's production. Texas alone accounted for a little more than 1,000,000,000 barrels.

The Southwest's oil resources are widely distributed over the region. Oil production was reported last year in 304



CRUDE OIL PRODUCTION IN SOUTHWEST



SOURCE: U. S. Bureau of Mines.

of the 427 counties and parishes of the four-state area. The most important producing areas are the Permian Basin and the Gulf Coast. The major portion of Texas oil production comes from these two areas. Almost all of New Mexico's production is derived from the Permian Basin fields, while over four-fifths of Louisiana's production is from the Gulf Coast.

Exploration and Production Activities and Institutions

While it lay buried in limestone and sand reservoirs for millions of years, the Southwest's oil was of no value until means were found to locate and produce it. Hence, the activities and institutions which have been associated with, and necessary to, the discovery and production of oil naturally occupy a vital place in the Southwest's oil industry, as well as in the region's over-all economy. Moreover, some of the activities and institutions developed in connection with the Southwest's oil production have contributed to the discovery and production of oil throughout the world.

Locating and producing oil today is the work of specialists, the increasing use of whom has been necessitated by technological advances in the industry. At the same time, these advances have been largely the product of the specialists or scientists employed by the industry. Geologists, geophysicists, and other scientifically trained personnel are needed to carry on the various oil-prospecting techniques, such as surface geology studies, core analysis, electric log analysis, and the

interpretation of data obtained from seismic, gravity meter, and magnetometer surveys. Trained personnel are needed for the vastly improved drilling rigs, and specialists have found places in activities associated with drilling, such as well cementing, mud control, perforating, acidizing, and fracturing. Meanwhile, the petroleum engineer has become a key person in planning the development and production of the oil reservoir.

While individuals specializing in most phases of oil exploration and production can be found in the southwestern producing divisions of one or another major oil company, the major oil companies — as well as the smaller producing companies and independents — usually depend upon other firms to handle under contract many of the specialized activities involved in oil exploration and production.

Leasing

Although a geological or geophysical crew frequently precedes a lease man into an area, the lease man usually is the first, and sometimes the only, contact the residents of an area have with the oil industry. The lease man goes to the owner of a piece of land to secure an oil and gas lease, which permits a company or individual to drill wells and produce any oil or gas discovered. The lease man may be an employee of the land department of a large oil company; he may be working for an independent operator; or he may be a lease broker or private lease man who is assembling leases either

ESTIMATED ACREAGE UNDER LEASE

January 1, 1954

	Total land area	Acreage under lease		
		Total	Proven productive	Nonproductive
Louisiana.....	28,903,680	11,450,000	1,200,000	10,250,000
New Mexico.....	77,767,040	13,800,000	800,000	13,000,000
Oklahoma.....	44,179,840	17,400,000	1,300,000	16,100,000
Texas.....	168,648,320	72,500,000	3,500,000	69,000,000
Southwest.....	319,498,880	115,150,000	6,800,000	108,350,000

SOURCE: Independent Petroleum Association of America.

for a specific client or for his own account for resale to others.

Land under oil and gas lease in the four southwestern states at the beginning of 1954 amounted to 115,000,000 acres, or 36 percent of the total leased acreage in the Nation, according to estimates of the Independent Petroleum Association of America. Around two-fifths of the total land area in each of the States of Louisiana, Oklahoma, and Texas was under lease, while in New Mexico about one-fifth was leased.

The bulk of the leased acreage in all four states was non-productive or unproven. Only 6,800,000 acres, or about 6 percent, of the land under lease had been proven productive of oil and gas. Proven acreage represented only 2 percent of the land area of the Southwest. Of the four states, Texas had the largest number of proven acres, but Louisiana had the highest proportion of its land area in proven acreage.

Locating the Oil

The decision to lease particular areas and the pinpointing of a specific location where a wildcat well is to be drilled usually are made by, or based upon recommendations of, geologists and geophysicists who have studied the areas to determine the existence of structures which may be favorable for the accumulation of oil. These specialists frequently are employees of large oil companies, although some of them are consultants working on a contract basis, and still others are oil producers in their own right.

While the number of petroleum geologists and geophysicists in the Southwest is unknown, the residence of members of the American Association of Petroleum Geologists furnishes a clue. At a recent date, members living in the four southwestern states totaled 5,373, including 3,413 in Texas, 1,144 in Oklahoma, 624 in Louisiana, and 192 in New Mexico. Members in the four states comprised 56 percent of the total members in the United States.

The methods are varied by which geologists and geophysicists locate structures in which oil may be found. In general, the methods fall into two categories: surface geology and subsurface geology. In the former, studies are made of the topography of an area, rock outcroppings, and any surface indications of oil or gas. Subsurface geological studies depend heavily on geophysical methods, such as seismic (the measurement of waves originated by miniature man-made

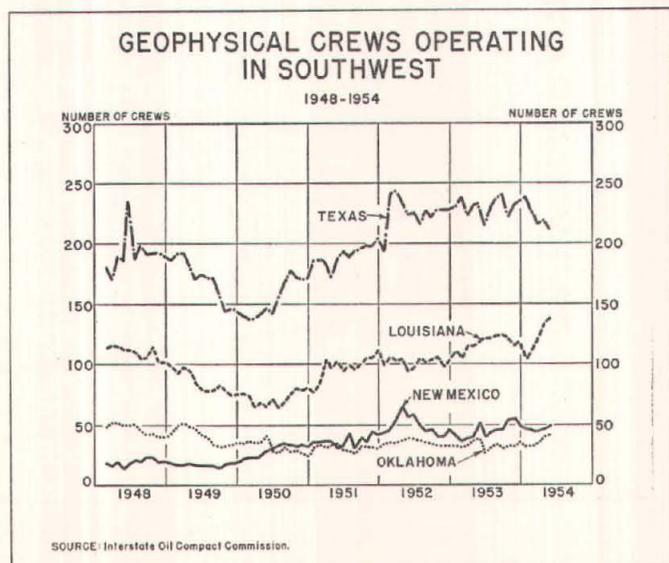
earthquakes), gravity (the measurement of variation in gravity at different locations), and magnetic (the measurement of magnetic elements of subsurface rock strata). In addition, information obtained through electric logs, cores, cuttings, and other means from wells drilled in a general area aids in reconstructing the subsurface geology of an area.

Data are compiled monthly by the Interstate Oil Compact Commission on the number of geological crews making seismic, gravity, and magnetic surveys. This information reflects, in part, exploratory interest in the various states in the Nation. The number of geological crews in the four southwestern states in 1953 averaged 427, an all-time high. Texas, with 231 crews, accounted for the largest share of this total, followed by Louisiana with 118. New Mexico and Oklahoma had 46 crews and 33 crews, respectively.

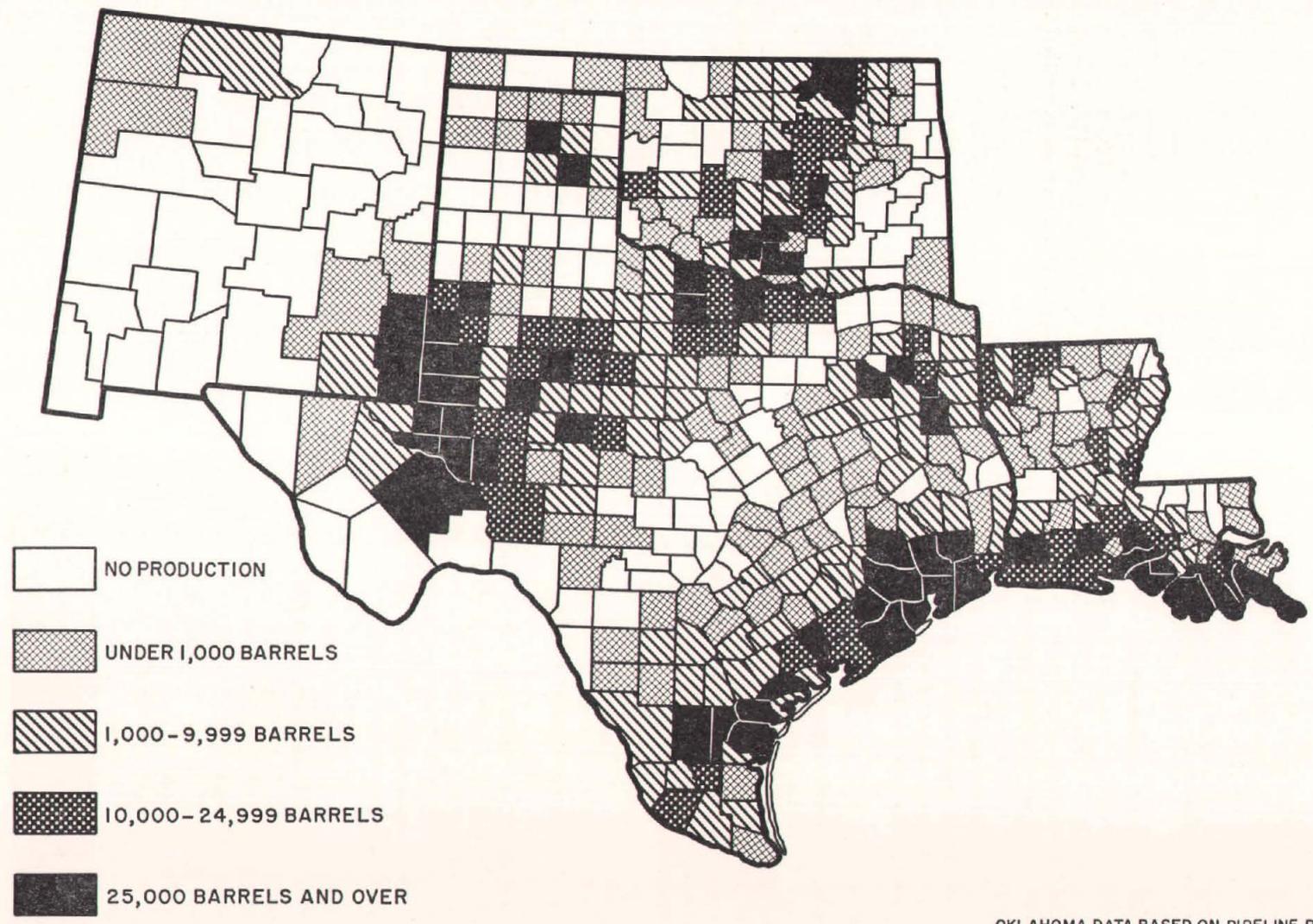
The average number of geological crews operating in the four southwestern states in 1953 represented about 59 percent of the United States total. This proportion has shown a declining tendency in recent years, despite the rise in the absolute number of crews working in the region. The increase in the number of crews in other parts of the Nation has been even larger than that of the Southwest.

It should be pointed out that not all land is leased nor are all wildcat wells located on the basis of geological or geophysical studies. Sometimes, developments occur so rapidly in an area that leases are taken for protective purposes, with the intention of geologizing the leased area later. Moreover, some wildcats are located on a "hunch" basis, or at least on the basis of nontechnical considerations.

A committee of the American Association of Petroleum Geologists which has been compiling statistics on the methods used in locating new-field wildcats found that, in 1953, more than four-fifths of all such wildcats drilled in the four southwestern states were located upon the basis of geological or geophysical studies or a combination of both. Less than 6 percent were located on a nontechnical basis, while the methods used to locate about 11 percent of these new-field



DAILY AVERAGE CRUDE OIL PRODUCTION IN SOUTHWEST, 1953



OKLAHOMA DATA BASED ON PIPELINE RUNS FOR THE PERIOD MAY 1952 - APRIL 1953.

wildcats could not be ascertained. The proportion located on nontechnical considerations was slightly smaller in the Southwest than in the Nation as a whole.

Drilling

Although many technical advances have been made during the past few decades in locating structures which may be favorable for the accumulation of oil, drilling remains the only positive way of determining the actual existence of oil. To this extent, drilling represents a phase of oil exploration. Usually, only those wells are considered exploratory which are long extensions of partly developed pools; are tests of possible new pools located above, below, or outside the limits of proven productive reservoirs; or are tests of new structures or environment never before productive. Drilling within already proven pools is considered development drilling.

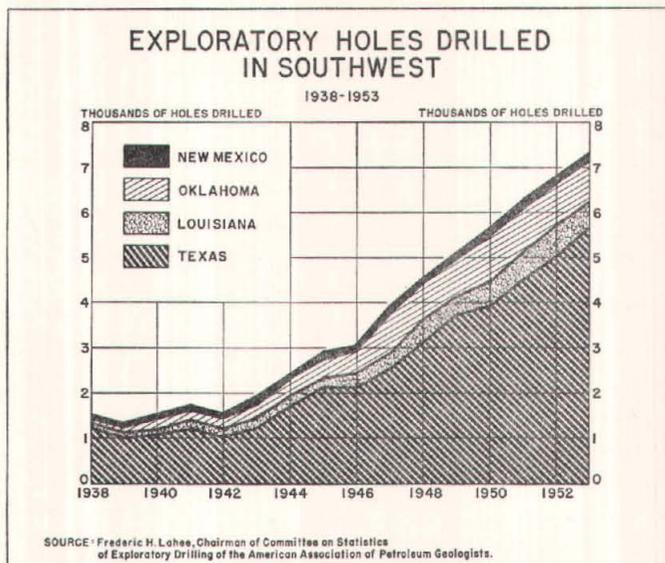
Drilling is the final phase of locating oil. The sponsor or operator who is having the wildcat drilled usually has been responsible for the performance of the other exploratory activities preceding the actual drilling. In view of this situation, the question may arise as to who is responsible for oil exploration. To whom do we owe the discovery of the Southwest's oil resources? Who assumes the risk of exploration? Although specific information is not available on the Southwest, data for the Nation compiled by the Committee on Statistics of Exploratory Drilling of the American Association of Petroleum Geologists probably reflect the situation prevailing in this region. Of the new-field wildcats completed in 1953, major oil companies drilled 17 percent and contributed more than half the cost of an additional 13 percent drilled by smaller oil companies and independent operators. The remaining 70 percent were drilled and financed by smaller oil companies and independents.

In general, the independents and smaller oil companies are more active in areas of relatively shallow wildcatting, where the cost per well is not so great. On the other hand, most of the very deep wildcats, costs of which may run to several hundred thousand dollars or more, are drilled by the large oil companies.

The operator owning the lease usually is not the one who actually drills the wells, since the actual drilling ordinarily is done on a contract basis by firms specializing in this work. However, many of these contractors are independent producers in their own right. The home offices of a majority of the Nation's drilling firms are in the Southwest, with important concentrations being found in Dallas, Fort Worth, Houston, Oklahoma City, Shreveport, Tulsa, and Wichita Falls.

Exploratory drilling has increased steadily in the Southwest during the past 10 years. The number of exploratory wells drilled in the region in 1953 totaled almost 7,400, which is 65 percent greater than 5 years earlier and 461 percent greater than the prewar year 1939.

During the past 5 years, the four southwestern states accounted for about 55 percent of the total exploratory holes



in the Nation and 64 percent of the total footage of such wells. In both, the Southwest's share of the national total has been somewhat larger in the postwar period than it was during the war years.

Although men have been drilling wells for oil in the Southwest for more than 50 years, there is no evidence that the region has exhausted its untapped oil and gas resources. The number of successful wildcats in the Southwest last year was the highest of record. Moreover, the proportion of wildcat ventures which have been successful in bringing in oil, condensate, or gas wells in recent years has been markedly higher than in the late 1930's and the early 1940's. The ratio of producers to total exploratory wells in the four southwestern states averaged 21.9 percent for the years 1949-53, compared with 21.5 percent in the previous 5 years and 16.5 percent in the period 1939-43. However, at least part of the improvement in the success ratio shown by these figures may be due to a lack of strict comparability of the data for early years, as well as to differences in the proportions of the various types of exploratory wells (outposts, deeper pool

SUCCESSFUL WELLS¹ AS PERCENT OF TOTAL EXPLORATORY HOLES DRILLED

1938-53

Year	Louisiana	New Mexico	Oklahoma	Texas	Southwest	United States
1938.....	20.8	9.3	25.8	13.1	14.7	14.0
1939.....	10.7	24.0	18.8	12.6	13.2	10.4
1940.....	23.6	23.1	22.2	11.4	14.4	12.0
1941.....	15.3	14.0	26.8	17.7	18.6	15.4
1942.....	19.8	20.0	13.8	17.0	16.9	15.3
1943.....	26.0	19.0	17.7	17.0	18.2	17.0
1944.....	29.0	12.2	22.7	21.8	22.3	19.7
1945.....	30.2	23.1	21.5	23.1	23.4	21.6
1946.....	21.4	22.6	19.7	21.0	20.8	19.8
1947.....	21.2	25.0	18.7	21.9	21.2	20.3
1948.....	28.6	21.2	18.5	19.8	20.5	18.3
1949.....	27.9	26.3	20.5	23.4	23.4	20.2
1950.....	23.9	36.4	18.3	23.3	22.8	19.5
1951.....	26.6	36.4	21.0	20.2	21.5	18.9
1952.....	24.3	29.6	17.6	20.0	20.5	18.8
1953.....	24.1	28.7	23.7	21.3	22.0	20.1

¹ Include not only oil producers but also gas and condensate producers.

SOURCE: Frederic H. Lahee, Chairman, Committee on Statistics of Exploratory Drilling, American Association of Petroleum Geologists.

GROSS ADDITIONS TO CRUDE OIL RESERVES
RELATED TO EXPLORATORY HOLES DRILLED
1938-53

(In thousands of barrels per hole drilled)

Year	Louisiana	New Mexico	Oklahoma	Texas	Southwest	United States
1938.....	2,826	4,465	1,000	1,359	1,558	1,158
1939.....	1,621	880	545	775	847	927
1940.....	845	1,128	514	1,236	1,098	623
1941.....	1,139	535	768	709	764	603
1942.....	1,253	850	291	979	895	585
1943.....	798	381	177	296	331	386
1944.....	920	-689 ¹	484	457	472	431
1945.....	1,055	-130 ¹	135	392	388	376
1946.....	818	810	247	745	658	462
1947.....	875	349	221	369	378	364
1948.....	565	611	571	514	532	474
1949.....	511	921	279	466	448	352
1950.....	1,006	268	220	229	294	249
1951.....	492	416	294	599	539	375
1952.....	722	841	303	122	230	221
1953.....	703	777	409	194	281	248

¹ Reserves figure revised downward.

SOURCES: Frederic H. Lahee, Chairman, Committee on Statistics of Exploratory Drilling, American Association of Petroleum Geologists, Reserves Committee, American Petroleum Institute.

tests, new-field wildcats, etc.), each of which has a different success ratio.

While the success in locating oil in exploratory drilling may have improved somewhat during the past 15 years, there is evidence that the oil pools being discovered are tending to become smaller. Gross additions to crude oil reserves have shown a declining trend in relation to the number of exploratory wells drilled and to the footage of such wells.

The gross addition to crude reserves per exploratory well drilled has been noticeably higher in the Southwest than in the Nation, but no substantial difference has existed in the relationship of gross additions to reserves per foot of exploratory wells drilled.

The maintenance of the success ratio in wildcatting at the same time that the size of oil pools discovered is tending to decline is not a wholly unexpected development. Improvements in oil-prospecting techniques, as well as additional

information available regarding thousands of wells which have been drilled, assist in locating oil pools despite the gradual reduction in the number of undiscovered pools in the region. On the other hand, the sheer size of the larger oil-producing structures increases the odds of their being located earlier than the smaller structures. Moreover, oil operators are likely to drill larger structures first and then smaller structures.

Although exploratory drilling is of prime importance in determining future oil production, development wells make up the larger portion of wells drilled. In 1953, there were more than three times as many development wells drilled in the Southwest as wildcat wells. In keeping with its position as the dominant producing region, the Southwest has been accounting for the majority of the Nation's development wells.

Well-Servicing Activity

Completing an oil well involves much more than the work of the drilling contractor, his crew, and the rig used in actually drilling the well. Frequently, the well casing has to be cemented to keep out unwanted fluids, and a firm specializing in this work is employed. Furthermore, electric logs are often taken by firms specializing in this process to determine the existence of oil sands and the various types of formations through which the well has passed. Such logs are needed particularly in rotary drilling when the mud in the well bore tends to obscure the formations encountered. Perforating the well casing to tap oil sands is another function usually performed by a separate contracting firm. Other important well-servicing activities performed by special contractors include acidizing, shooting, and fracturing reservoir rocks to increase the flow of oil. Well-servicing firms are important elements in the Southwest's oil industry. Their gross receipts from these operations in Texas alone last year are estimated to have exceeded \$45,000,000.

Producing the Oil

With the drilling of the discovery well, the petroleum engineer comes into the picture. He is responsible for planning the proper development of the field and instituting methods and practices to secure the maximum amount of profitable oil from the oil pool. The petroleum engineer frequently is an employee of the operator or owner of the wells, although he may be a consultant operating on a fee basis.

The operator naturally assumes direct responsibility for producing wells once they are completed. The men he employs to handle the necessary functions associated with servicing the wells are called the production crew. They include men who connect pipes and valves; care for such motors as are needed; clean out wells; and, in the case of pumping wells, see that wells are being pumped efficiently. Near many oil fields in lonely stretches of west Texas and New Mexico, these production crews can be found living in neat little settlements provided by the oil companies.

GROSS ADDITIONS TO CRUDE OIL RESERVES
RELATED TO FOOTAGE OF EXPLORATORY HOLES DRILLED
1938-53

(Number of barrels per foot drilled)

Year	Louisiana	New Mexico	Oklahoma	Texas	Southwest	United States
1938.....	427	1,377	245	387	404	345
1939.....	228	287	130	204	203	278
1940.....	140	465	139	313	267	185
1941.....	171	218	207	173	177	170
1942.....	184	269	72	227	198	155
1943.....	114	105	44	64	70	98
1944.....	116	-193 ¹	117	92	93	102
1945.....	144	-33 ¹	31	85	81	92
1946.....	123	240	67	165	146	120
1947.....	123	91	62	84	85	93
1948.....	70	126	136	114	110	116
1949.....	65	178	77	110	100	92
1950.....	128	52	61	50	62	64
1951.....	69	81	73	123	108	89
1952.....	90	147	67	25	44	49
1953.....	78	127	96	39	53	54

¹ Reserves figure revised downward.

SOURCES: Frederic H. Lahee, Chairman, Committee on Statistics of Exploratory Drilling, American Association of Petroleum Geologists, Reserves Committee, American Petroleum Institute.

Importance to the Southwest's Economy

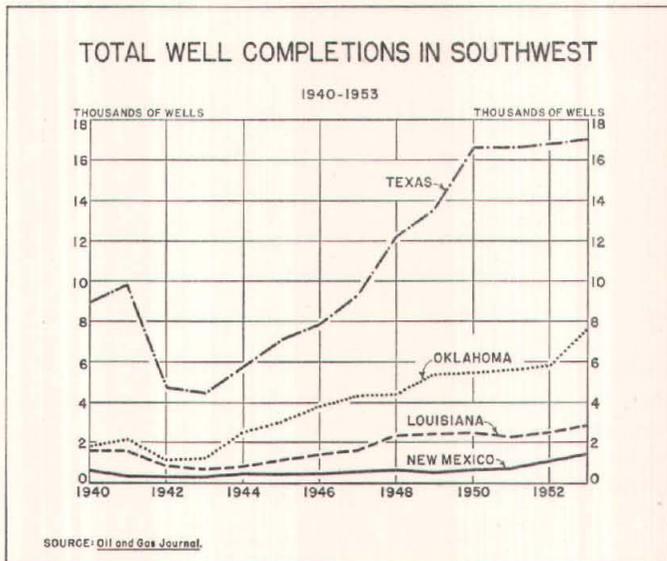
That crude oil production is important to the Southwest's economy is obvious to even the most casual observer. There are relatively few people in the region who do not have at least one or more friends or relatives associated with oil production — either working for some major oil company, independent operator, drilling contractor, or one of the many well-servicing firms or receiving income from royalties or lease rentals.

The number of wage and salary workers engaged in the exploration, development, and production of crude oil and natural gas in the four producing southwestern states in May 1954 amounted to 194,000, or over 5 percent of total nonfarm employment. Texas, with 114,000, accounted for the major portion of these oil workers. Oil and gas exploration and production workers comprised a larger proportion of nonfarm employment in Oklahoma than in any of the other southwestern states, amounting to about 8 percent of the total. On the other hand, such workers comprised only 4 percent of nonfarm employment in Louisiana.

Total salaries and wages of employees in oil and gas exploration and production activities in the Southwest in 1952 are estimated at around \$900,000,000. This represents 7 percent of the gross payrolls of all workers and almost 5 percent of the total personal income in the region. Wage rates in the oil industry are higher than those in most of the Southwest's other industries.

Royalty income from the region's oil production last year is estimated to be in excess of \$600,000,000. Furthermore, southwestern landowners receive a substantial income from rentals and bonuses from the more than 115,000,000 acres under lease. Rentals frequently are \$1 an acre per year, but rentals on particularly sought-after areas may be considerably higher.

In addition to salaries and wages, royalties, and rentals, the region's inhabitants also receive income from oil produc-



tion in the form of profits and dividends. No precise data are available on regional income from profits and dividends, but it is probably smaller than the amount received as either salaries and wages or royalty income.

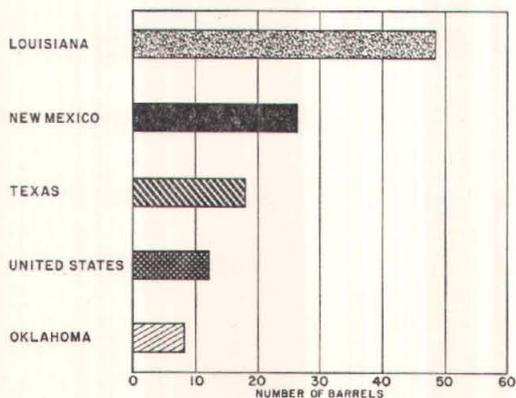
Although the number employed and the direct income received from oil exploration and production are impressive, such activity represents only one facet of the role oil plays in the Southwest's economy. Probably of equal or greater importance are the indirect effects of oil. Prior to the oil industry, the Southwest had largely an agricultural economy. Oil not only has furnished a new and expanding source of employment and income to the people of the region but also has provided the stimulus for a major portion of the industrial development experienced by the Southwest. The machinery, metals fabricating, and steel industries in the region got their start in turning out equipment and supplies for the oil industry, and an important part of their business today continues to be with the oil industry. Other industries, such as the oil refining and chemicals industries, were attracted to the region to process oil and associated natural gas and natural gas liquids products. Moreover, natural gas — which was, in effect, a by-product of the oil development — brought to the Southwest many industries seeking cheap fuel, such as the aluminum, zinc, and lead refining industries.

While the expansion in the region's manufacturing industries has been one of the outstanding effects of the development of its oil resources, oil has had its impact on most other types of economic activity in the Southwest. In trade, oil field stores; in service industries, law firms specializing in oil work and oil accounting and oil appraising businesses; in finance, oil departments in some of the region's large banks; in transportation, pipelines; and in construction, gasoline plants, office buildings for oil companies, and a variety of other projects — all are products of oil development.

As employment has increased in the oil industry and associated activities, the market of the various consumer industries also has increased. All segments of the region's economy have been stimulated by this growth in consumer demand.

DAILY AVERAGE PRODUCTION PER OIL WELL

1953



The rapidly expanding southwest economy has had insufficient capital to meet its needs. Oil has created nationwide interest in the opportunities existing in the Southwest and has attracted a substantial inflow of capital. This capital has been vital in the development of oil itself, as well as in the growth of many industries connected with the oil industry.

Oil, moreover, has been an important investment outlet for capital accumulated by institutions and individuals within the region itself. The oil loan business of commercial banks has become increasingly important during the past 20 years, since the adoption of proration machinery in the various states in the region imparted a greater stability to the industry. At the present time, oil loans of weekly reporting member banks in the Eleventh Federal Reserve District appear to be well in excess of \$200,000,000 and comprise the largest single type of commercial and industrial loan made by these banks.

In addition to inducing the inflow of capital, oil has brought an in-migration of skilled and technically trained workers. Some of the first oil fields in the Southwest were developed by men who gained their experience in Pennsylvania fields. Technical people in various phases of the oil industry have continued to be attracted to the Southwest.

Land values have been influenced markedly by the existence of oil in the region. Almost every farmer and rancher has hopes that some day oil will be discovered on his land. It is not uncommon for the price of unproven land to be double, or more, the price the land would be worth for purely agricultural purposes.

The development of oil production has tended to diversify — and, accordingly, stabilize — the Southwest's economy. Oil activity frequently has been a sustaining factor in trade and income in areas experiencing droughts or other unfavorable agricultural developments.

The State and local governments in the region are supported to an important extent by taxes on oil. Oil production taxes furnished over one-fourth of the tax revenue of the State Government of Texas in the fiscal year 1953; around one-fifth of the Louisiana State Government's tax revenue; and substantial, although smaller, shares of the revenue of the State Governments of Oklahoma and New Mexico. In addition, these states have a variety of other taxes which increase the amount of revenue derived directly or indirectly from oil. Property taxes paid by the oil industry are a very important source of revenue for many of the local governments. For instance, in 1953, over one-third of the total property tax collections of county governments in Texas came from the oil industry.

Oil contributes significantly to the support of the Southwest's public schools, partly through taxes paid to the State governments as well as through property taxes paid to the local public school districts. A recent survey of the Texas Mid-Continent Oil and Gas Association reveals that many of the independent school districts in Texas derive more than 50 percent of their tax revenue from oil property taxes.

The increasing diversification of the Southwest's economy during the past decade has tended to reduce the region's dependence upon oil. Nevertheless, if the indirect — as well as direct — effects of oil development are considered, oil has been the most important single factor influencing the Southwest during the 20th century.

Summary and Outlook

The Southwest is one of the world's major oil-producing areas. There are more geologists, more drilling contractors, more oil companies, and more crude oil production in this region than in any other area of the world. The Southwest now accounts for about one-third of the world's production and about two-thirds of the production in this Nation.

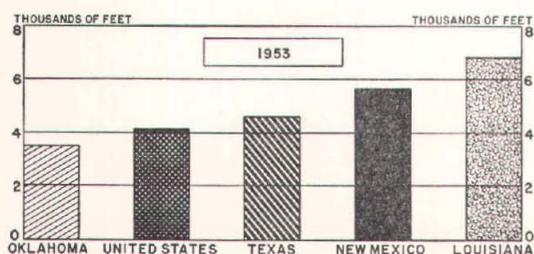
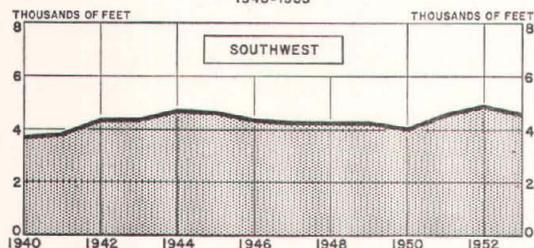
Crude oil production in the region has shown an almost uninterrupted rise since the famous discovery at Spindletop in 1901. In the past 10 years, production has almost doubled. The increase in production has been caused by a combination of factors: (1) the sustained growth in the Nation's demand for petroleum products, (2) the relative success of the industry in locating rich oil pools which are accessible to markets, and (3) a favorable economic climate which has induced investment in oil exploration and production activities. The future of the region's crude production undoubtedly will continue to be affected greatly by developments in these factors.

Most observers in the industry expect the demand for oil to show a continued, although somewhat moderated, rate of growth during the next few decades. If this assumption is accepted, demand will continue to provide a stimulus to oil production in the Southwest.

Continued expansion in the region's oil production, then, will depend upon the existence of sufficient oil resources and the industry's success in locating and economically produc-

AVERAGE DEPTH OF NEW WELLS DRILLED

1940-1953



ing oil. Despite the number of oil fields already discovered and the amount of oil produced, there are no indications that the Southwest is running out of oil. The steady increase in exploratory activity in the region attests to the satisfactory results achieved. The success ratio in exploratory drilling has been maintained, and last year the number of new discoveries in the Southwest reached an all-time high.

Technical advances in oil prospecting are helping to locate structures favorable to oil accumulation which might have been overlooked by earlier methods. Deeper oil pools are becoming increasingly available with the improvement in drilling equipment. Furthermore, new techniques are permitting the development of some oil pools formerly considered noncommercial. Other methods increase the proportion of oil in place which can be produced economically from existing pools. While secondary recovery methods are being utilized to a greater extent, the Southwest, as yet, is far from fully exploiting these means of achieving additional oil production. In most instances, primary recovery has left considerably more oil in the ground than has been produced from the various pools.

Another promising factor which may be expected to support further growth of the Southwest's oil production is the prospective development of the Tidelands — a new frontier for oil exploration. While some production was obtained in this area off Louisiana in the early postwar years, in recent years drilling activity was practically halted because of the uncertain status of ownership. With the ownership question settled, exploratory activity has increased markedly, and Tidelands production may be expected to increase accordingly. The relatively heavy cost of Tidelands oil ventures, however, may have a deterring influence on oil production in that area. Nevertheless, if the oil resources of the Tidelands prove to be a counterpart of the rich oil pools found on the shoreward side of the Gulf Coast, as many geologists believe, the development of these resources certainly will move forward.

Tending to offset these favorable factors in the outlook for the region's oil production, the cost of locating and producing crude oil in the Southwest has been following a noticeably rising trend. This rise has been due, in part, to increases in labor and material costs. In addition, the apparent decline in the size of discoveries is tending to increase costs. Fewer barrels of oil are being discovered in relation

to the number of exploratory wells drilled than was the case 10 or 15 years ago. If this trend should continue, it would become an unfavorable factor in the future development and expansion of the region's oil industry. In so far as the Nation may be experiencing a corresponding decline in the size of oil pools discovered in relation to exploratory wells drilled — and, hence, similar tendencies for costs to rise — the Southwest may not suffer a competitive disadvantage in relation to other areas in the Nation. A rise in discovery costs, however, may place the region's oil industry at a competitive disadvantage with foreign oil or other current and prospective sources of energy, unless they also sustain increases in costs.

Despite the rise in costs, the economic climate has been favorable for oil exploration and production in the postwar period. Crude oil prices, which had been held at a fairly constant level during World War II, rose markedly in the early postwar years and today are more than double the 1945 level. Meanwhile, exploratory drilling, stimulated by the rise in prices, has shown a corresponding increase in the postwar period. Federal tax provisions pertaining to the percentage depletion allowance and the expensing of intangible drilling costs also have promoted oil exploration and production. While the depletion allowance has remained unchanged since 1926, the rise in the corporate income tax has had the effect of enhancing the value of the depletion allowance in encouraging investment in oil exploration ventures.

During the current year, the oil industry has been confronted with excessive stocks. Demand has failed to meet earlier industry expectations, and petroleum markets have been soft. It has been necessary for major producing states in the Southwest to cut back production substantially. Crude production in the region during the first part of August, at 4,340,000 barrels per day, was 440,000 barrels less than in August 1953.

Current difficulties, however, are likely to prove only a temporary setback to the long-term expansion in the Southwest's oil production. Over the longer run, rising costs and increasing competition from other fuels and other sources of crude may modify the rate of growth in the region's oil production, but it appears reasonable to expect that this segment of the Southwest's economy will show a further upward trend for years to come.

*This is the first in a series of articles about the oil industry in the Southwest which will appear in the **Monthly Business Review** from time to time. The second article, on refining, will be published in the October **Review**.*

REVIEW OF BUSINESS, AGRICULTURAL, AND FINANCIAL CONDITIONS



Department store sales in the District in July reached a record dollar volume for the month and exceeded those of a year earlier by 6 percent. However, cumulative sales for the first 7 months of 1954 lagged 4 percent behind a year ago.

Department store credit outstanding declined 1 percent in July, with the decrease in charge accounts more than offsetting the increase in instalment accounts. End-of-month credit about equaled that of a year earlier. Inventories on July 30 were 6 percent below those on the same date in 1953.

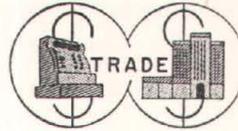
High temperatures and lack of moisture in August reduced prospects for agricultural production in the District, although showers late in the month brought some relief. In many sections, ranges and pastures are in the poorest condition in two decades, and livestock are being maintained by supplemental feeding. Preparations for seeding winter wheat started under generally favorable moisture conditions. Farm commodity prices are holding about steady.

District crude oil production declined during August to the lowest daily average rate in 2 years, as the Nation's refineries reduced runs to work off heavy gasoline inventories; stocks of gasoline in early August were 10 percent above a year earlier.

Nonagricultural employment in the five states of the District rose in August to slightly above a year ago. Manufacturing employment increased in August for the third consecutive month but remained 4 percent below the record established in August 1953.

The value of construction contracts awarded in the District in July was 6 percent above a year earlier, with residential awards up 40 percent. The January-July value was 9 percent over a year ago.

Commercial, industrial, and agricultural loans of the District's weekly reporting member banks declined substantially during the 4 weeks ended August 18, due principally to CCC cash redemptions of certificates of interest maturing August 2. Other loans increased. Security holdings rose sharply, reflecting the investment of funds arising from deposit gains, reductions in reserve requirements, and redemptions of CCC certificates of interest.



Consumer spending at District department stores during July established a new dollar volume record for that month and exceeded July 1953 by 6 percent. July was the second month this year in which department stores gained in monthly sales over 1953; however, sales in April, which showed a year-to-year increase of 1 percent, were benefited by the late date of Easter.

The monthly index of District department store sales (1947-49 = 100), adjusted for seasonal variations, rose from 127 percent in June to 132 percent in July, compared with 125 percent in July 1953. The July adjusted index of 132 was the highest since June 1953 and compares with the average of 123 for the last half of 1953 and 121 for the first half of 1954.

As a result of the favorable sales record for July, the cumulative loss in total department store sales compared with 1953 was reduced from 5 percent as of June 30 to 4 percent at the end of July. During the first half of August, District sales continued above those in 1953, showing a year-to-year gain of over 2 percent.

A strong consumer demand for hard goods was the principal feature of District department store sales during July and appears to have accounted for the largest percentage gains over a year earlier. Among the major appliances, sales of air-conditioning units were reported to be 188 percent above a year ago; sales of mechanical refrigerators were up 3 percent. Sales of furniture and bedding also rose above 1953 by 3 percent. Consumer buying of wearing apparel, in total, was slightly below the 1953 figure; however, sales of men's clothing showed a year-to-year gain of 2 percent.

RETAIL TRADE STATISTICS

(Percentage change)

Line of trade by area	NET SALES			STOCKS ¹	
	July 1954 from		7 mo. 1954 comp. with 7 mo. 1953	July 1954 from	
	July 1953	June 1954		July 1953	June 1954
DEPARTMENT STORES					
Total Eleventh District.....	6	-1	-4	-6	2
Corpus Christi.....	8	-13	-5	0	0
Dallas.....	8	5	-2	-1	5
El Paso.....	2	-12	-6	-10	4
Fort Worth.....	5	-5	-5	-8	0
Houston.....	4	1	-4	-9	0
San Antonio.....	(D i s c o n t i n u e d)				
Shreveport, La.....	9	-12	-1	-7	-1
Waco.....	15	0	-3	6	4
Other cities.....	6	0	-5	-7	2
FURNITURE STORES					
Total Eleventh District.....	6	-1	—	-10	1
Austin.....	1	-6	—	-10	-9
Dallas.....	53	10	—	0	36
Houston.....	7	-1	—	—	—
Port Arthur.....	14	-2	—	—	—
San Antonio.....	-13	1	—	—	—
Shreveport, La.....	-15	-6	—	-17	-3
Other cities.....	7	-6	—	-6	-4
HOUSEHOLD APPLIANCE STORES					
Total Eleventh District.....	5	1	—	—	—
Dallas.....	28	7	—	—	—

¹ Stocks at end of month.

INDEXES OF DEPARTMENT STORE SALES AND STOCKS

(1947-49 = 100)

Area	UNADJUSTED				ADJUSTED ¹			
	July 1954	June 1954	May 1954	July 1953	July 1954	June 1954	May 1954	July 1953
SALES—Daily average								
Eleventh District.....	111	112	119	105 _r	132	127	123	125 _r
Dallas.....	108	103	113	100 _r	133	126	115	123
Houston.....	129	128	138	124	148	141	139	143
STOCKS—End of month								
Eleventh District.....	124 _p	121	130	131	133 _p	131	128	141 _r

¹ Adjusted for seasonal variation.
r—Revised
p—Preliminary.

As a result of the increase in purchases of "big ticket" hard goods items, instalment credit outstanding at department stores in the District rose 2 percent during July. This increase was more than offset by an 8-percent decline in charge accounts, and the net change in total credit during the month was a decrease of 1 percent. Compared with a year earlier, total sales credit in July showed no net change, as a 1-percent decrease for charge accounts was offset by a corresponding increase in instalment accounts. The average collection time, based on July figures, was 64 days for charge accounts and about 16 months for instalment accounts. Collection ratios showed no important changes from either a month ago or a year ago.

Department store inventories increased 2 percent during July and at the end of the month were 6 percent below July 1953. End-of-month stocks related to total sales during July, as reported by a representative group of District department stores, indicated 3.32 months' supply of merchandise on hand, compared with 3.34 months at the end of June and 3.67 months at the end of July 1953. Merchandise on order was reported to be up 2 percent from June but down 11 percent from a year earlier.

Furniture store sales in the Eleventh Federal Reserve District during July declined 1 percent below June but showed a gain of 6 percent over July 1953. Accounts receivable, up 2 percent from June, were 3 percent under a year earlier. Furniture store inventories at the end of July, although showing a month-to-month rise of 1 percent, were 10 percent below the same date last year.



Prospects for agricultural production in the District declined during August, as temperatures above the 100-degree mark and lack of moisture caused deterioration of most

growing crops. Light to heavy showers in the latter part of the month brought relief from high temperatures and were of material benefit to feed crops and pastures but were generally too late to improve the cotton crop, except in northwestern counties of Texas.

The United States Department of Agriculture reports that, on the basis of August 1 conditions, cotton production in District states is indicated at 5,250,000 bales, down 25 percent from a year ago but 9 percent above the 1943-52 average. The decline from 1953 results largely from an 18-percent

COTTON PRODUCTION

Texas Crop Reporting Districts

(In thousands of bales—500 lb. gross wt.)

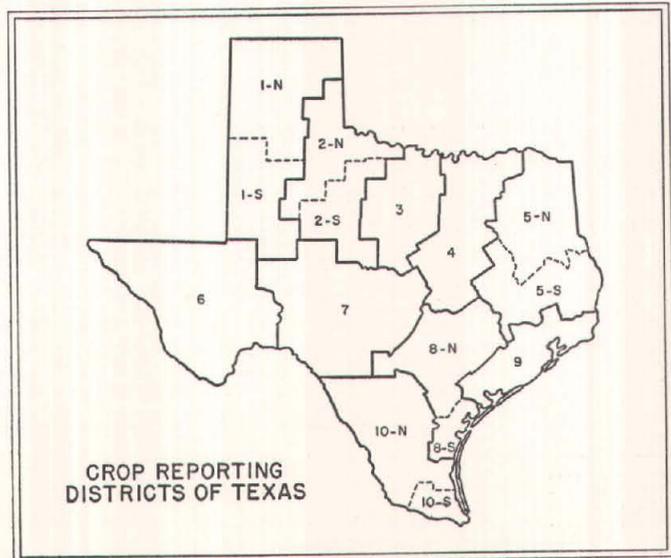
Crop reporting district	1954 Indicated August 1	1953	1952	1954 as percent of 1953
1-N.....	375	548	469	68
1-S.....	970	835	1,005	116
2-N.....	200	143	182	140
2-S.....	205	285	59	72
3.....	20	39	12	51
4.....	420	1,101	610	38
4-N.....	70	136	95	51
5-N.....	60	119	95	50
5-S.....	160	253	239	63
6.....	25	39	17	64
7.....	110	215	201	51
8-N.....	180	76	222	237
8-S.....	150	238	231	63
9.....	55	32	61	172
10-N.....	400	258	310	155
10-S.....	400	258	310	155
State.....	3,400	4,317	3,808	79

SOURCE: United States Department of Agriculture.

reduction in acreage. Estimated yield per acre is sharply lower in Oklahoma, somewhat below the near-record level of 1953 in Texas, about unchanged in Louisiana, and higher in New Mexico and Arizona.

The condition of the cotton crop on August 1 was reported to be generally good in most sections of the District, as well as in other parts of the Cotton Belt. However, during August, extremely high temperatures caused some deterioration of yield prospects. In the irrigated sections of west Texas, New Mexico, and Arizona, the crop is in excellent condition, and yields are expected to equal or exceed those of a year ago.

The Texas cotton crop, indicated at 3,400,000 bales, is 21 percent below production in 1953 but 5 percent above the 1943-52 average. The prospective yield of 212 pounds of lint per acre is sharply lower than the 1953 average of 233 pounds—the second highest of record—but is 30 pounds above the 10-year average. Increases in production are indicated for south Texas, the southern High Plains, and the northern Rolling Plains. More favorable weather during the growing season has resulted in increased output in south Texas, while more favorable moisture conditions at planting



CROP REPORTING DISTRICTS OF TEXAS

CROP PRODUCTION

Texas and Five Southwestern States

(In thousands of bushels)

Crop	TEXAS			FIVE SOUTHWESTERN STATES ¹		
	Estimated August 1, 1954	1953	Average 1943-52	Estimated August 1, 1954	1953	Average 1943-52
Cotton ²	3,400	4,317	3,239	5,250	6,957	4,791
Corn.....	35,152	33,874	51,266	53,042	52,991	91,286
Winter wheat....	31,160	23,035	57,221	102,886	94,924	136,509
Oats.....	42,412	39,150	26,309	64,701	54,141	46,983
Barley.....	3,150	1,755	2,628	20,396	10,641	9,877
Rye.....	280	315	206	1,182	1,054	777
Rice ³	15,810	14,924	10,162	29,204	27,080	20,829
Sorghum grain....	74,877	55,198	79,379	84,193	66,156	94,745
Flaxseed.....	578	868	819	677	868	1,288
Hay ⁴	1,545	1,705	1,546	4,946	5,063	4,740
Peanuts ⁵	102,550	179,400	282,635	161,050	299,890	395,214
Irish potatoes....	2,140	2,484	3,818	5,064	6,099	8,303
Sweet potatoes...	1,485	2,550	4,047	10,675	11,511	13,894

¹ Arizona, Louisiana, New Mexico, Oklahoma, and Texas.² In thousands of bales.³ In thousands of bags containing 100 pounds each.⁴ In thousands of tons.⁵ In thousands of pounds.

SOURCE: United States Department of Agriculture.

time enabled farmers of the Plains counties to plant a substantially larger acreage than in 1953. The sharpest decline in cotton production is in the northern Blacklands section, where production is estimated to be only 38 percent of last year's output.

During August the cotton crop continued to deteriorate in central and eastern sections of Texas, and some dry-land acreage in the southern High Plains counties suffered from lack of moisture. Harvest of the Lower Rio Grande Valley crop was virtually complete by August 31, the deadline under the pink bollworm control program. By mid-August, ginnings in the Lower Rio Grande Valley were approaching the 400,000-bale mark.

The outlook for District production of feed crops, rice, peanuts, and potatoes declined during July and most of August. High temperatures reduced production from late acreages of corn and sharply curtailed yields of grain sorghums in central and eastern sections of the District. Prospective rice yields were reduced slightly by a lack of sufficient irrigation water to meet the requirements of a record acreage. However, rice production is expected to exceed the record output of last year. Grain sorghum production of 84,193,000 bushels — an increase of 27 percent over 1953 — is indicated by the Department of Agriculture's August 1 report.

Peanut production in Texas, now forecast at 102,550,000 pounds, is 43 percent less than the 1953 crop. Hay production, at 1,545,000 tons, is 9 percent below the record 1953 crop and about average for the past 10 years. Citrus fruits in the Lower Rio Grande Valley of Texas continue to grow

LIVESTOCK RECEIPTS

(Number)

Class	FORT WORTH MARKET			SAN ANTONIO MARKET		
	July 1954	July 1953	June 1954	July 1954	July 1953	June 1954
Cattle.....	80,186	100,696	98,808	26,009	29,222	35,389
Calves.....	23,422	27,539	24,548	21,637	21,256	17,257
Hogs.....	26,401	26,635	33,550	2,697	—	2,947
Sheep.....	56,297	67,966	155,932	118,807	117,085	127,942

¹ Includes goats.

SHORN WOOL PRODUCTION

(In thousands of pounds)

State	1954p	1953	Average 1943-52	1954 as percent of average
Arizona.....	2,993	2,808	3,121	96
Louisiana.....	416	364	469	89
New Mexico.....	10,875	11,349	12,573	86
Oklahoma.....	1,028	883	1,318	78
Texas.....	43,505	42,511	61,992	70
Total.....	58,817	57,915	79,473	74

p—Preliminary.

SOURCE: United States Department of Agriculture.

satisfactorily, and indications are that shipments will be a little earlier than usual.

Commercial vegetable production in the District has been reduced by the high temperatures and dry weather of July and August, and carlot movement of melons and other summer vegetables was stopped earlier than usual. Seeding of acreage for early fall harvest and preparation of seedbeds for winter commercial vegetable production in south Texas are making satisfactory progress under generally favorable moisture conditions.

Preparation for seeding of the 1955 winter wheat crop was getting under way in northwestern counties of Texas at the end of August. Showers during the month brought up volunteer wheat, and moisture conditions generally are considered favorable for seeding of the new crop.

Receipts of cattle and calves at major markets in the District during August were generally higher than a year ago and about the same as in July. The extreme drought in central and eastern Texas counties resulted in some liquidation in advance of the normal marketing season. Elsewhere in the District, cattle and calves were moving to market at normal rates for this season of the year. A substantial portion of calves and yearlings in the range areas of the District was contracted for early fall delivery, and prices for quality cattle from these areas continue steady to strong.

The condition of ranges and pastures in the District deteriorated rapidly during August; according to United States Department of Agriculture reports, they were in the poorest condition since 1934. Hot, dry weather during July and August cured all green feed, and most ranges were bare by early August. In central and eastern counties of Texas, pas-

FARM COMMODITY PRICES

Top Prices Paid in Local Southwest Markets

Commodity and market	Unit	Comparable week		
		Week ended Aug. 19, 1954	last month	last year
COTTON, Middling 15/16-inch, Dallas....	lb.	\$.3385	\$.3395	\$.3220
WHEAT, No. 1 hard, Fort Worth.....	bu.	2.60	2.60	2.50 $\frac{3}{4}$
OATS, No. 2 white, Fort Worth.....	bu.	.94 $\frac{1}{4}$.96 $\frac{3}{4}$	1.02 $\frac{1}{2}$
CORN, No. 2 yellow, Fort Worth.....	bu.	1.87	1.89 $\frac{3}{4}$	1.91 $\frac{3}{4}$
SORGHUMS, No. 2 yellow, Fort Worth....	cwt.	2.70	2.75	2.96
HOGS, Choice, Fort Worth.....	cwt.	24.50	24.25	26.50
SLAUGHTER STEERS, Choice, Fort Worth..	cwt.	22.00	24.00	24.00
SLAUGHTER CALVES, Choice, Fort Worth..	cwt.	17.00	19.00	18.00
STOCKER STEERS, Choice, Fort Worth....	cwt.	18.50	20.00	18.00
SLAUGHTER SPRING LAMBS, Choice, Fort Worth.....	cwt.	20.00	19.50	22.00
BROILERS, south Texas.....	lb.	.27	.28	.29
EGGS, current receipts, Fort Worth.....	case	10.00	9.00	—

CONDITION STATISTICS OF ALL MEMBER BANKS

Eleventh Federal Reserve District
(In millions of dollars)

Item	July 28, 1954	July 29, 1953	June 30, 1954
ASSETS			
Loans and discounts.....	\$3,197	\$2,897	\$3,191
United States Government obligations.....	2,342	2,376	2,334
Other securities.....	477	433	468
Reserves with Federal Reserve Bank.....	952	942	971
Cash in vault.....	135e	127e	119
Balances with banks in the United States.....	1,007	867	1,199
Balances with banks in foreign countries.....	1e	1e	1
Cash items in process of collection.....	299	249	433
Other assets.....	145e	130e	148
TOTAL ASSETS.....	8,555e	8,022e	8,864
LIABILITIES AND CAPITAL			
Demand deposits of banks.....	982	811	1,193
Other demand deposits.....	5,840	5,670	5,951
Time deposits.....	1,082	906	1,084
Total deposits.....	7,904	7,387	8,228
Borrowings.....	5e	28e	0
Other liabilities.....	47e	49e	48
Total capital accounts.....	599e	558e	588
TOTAL LIABILITIES AND CAPITAL.....	8,555e	8,022e	8,864

e—Estimated.

Demand deposits of weekly reporting member banks rose \$166,053,000, or 4.4 percent, during the 4 weeks ended August 18, with domestic interbank deposits accounting for slightly less than two-thirds of the expansion. Country correspondents built up their balances with these larger banks with funds partly obtained from cash redemptions of the CCC certificates of interest maturing August 2. The more notable changes in other categories of demand deposits included increases of \$33,758,000 in deposits of the United States Government and \$23,853,000 in the accounts of indi-

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

(Amounts in thousands of dollars)

City	DEBITS ¹			DEPOSITS ²			
	July 1954	Percentage change from		July 31, 1954	Annual rate of turnover		
		July 1953	June 1954		July 1954	July 1953	June 1954
ARIZONA							
Tucson.....	\$ 101,179	—3	—3	\$ 84,952	14.4	14.5	14.8
LOUISIANA							
Monroe.....	48,257	—2	6	41,260	13.4	15.5	12.6
Shreveport.....	203,093	6	1	167,825	14.5	14.2	14.6
NEW MEXICO							
Roswell.....	24,868	2	—4	28,542	10.3	10.7	10.7
TEXAS							
Abilene.....	56,433	9	5	53,177	12.7	12.2	12.2
Amarillo.....	135,495	4	7	102,056	16.2	15.0	15.5
Austin.....	120,347	9	1	103,663	13.3	13.3	13.1
Beaumont.....	114,169	—13	—4	93,130	14.6	16.9	15.2
Corpus Christi.....	165,492	5	5	118,534	16.8	17.4	16.1
Corsicana.....	12,332	—2	—7	20,664	7.1	7.7	7.7
Dallas.....	1,783,406	8	3	909,914	22.9	22.6	22.3
El Paso.....	183,374	—8	2	119,948	18.1	20.3	17.9
Fort Worth.....	541,545	6	—5	330,655	19.4	18.4	20.3
Galveston.....	74,610	—2	6	67,333	13.2	11.2	12.5
Houston.....	1,756,080	6	—3	1,076,133	19.4	19.0	19.6
Laredo.....	18,614	—2	—4	17,504	12.4	12.2	12.4
Lubbock.....	98,590	7	7	81,256	14.4	14.0	13.6
Port Arthur.....	47,277	1	—1	37,553	15.1	15.2	15.1
San Angelo.....	41,095	10	4	45,545	10.9	10.0	10.9
San Antonio.....	409,462	4	#	313,400	15.7	14.9	16.0
Texarkana ³	17,190	—12	3	17,508	11.8	12.2	11.4
Tyler.....	61,288	5	—5	56,150	12.8	13.2	13.3
Waco.....	79,083	6	4	62,439	15.1	14.5	14.6
Wichita Falls.....	83,431	2	—8	103,812	9.6	10.1	10.8
Total—24 cities....	\$6,176,710	5	#	\$4,052,953	18.1	17.8	18.0

¹ Debits to demand deposit accounts of individuals, partnerships, and corporations and of states and political subdivisions.

² Demand deposit accounts of individuals, partnerships, and corporations and of states and political subdivisions.

³ These figures include only one bank in Texarkana, Texas. Total debits for all banks in Texarkana, Texas-Arkansas, including two banks located in the Eighth District, amounted to \$34,988,000 for the month of July 1954.

Indicates change of less than one-half of 1 percent.

GROSS DEMAND AND TIME DEPOSITS OF MEMBER BANKS

Eleventh Federal Reserve District

(Averages of daily figures. In thousands of dollars)

Date	COMBINED TOTAL		RESERVE CITY BANKS		COUNTRY BANKS	
	Gross demand	Time	Gross demand	Time	Gross demand	Time
July 1952.....	\$6,566,056	\$ 744,250	\$3,147,075	\$408,616	\$3,418,981	\$335,634
July 1953.....	6,572,440	901,614	3,152,963	495,431	3,419,477	406,183
March 1954....	6,821,245	1,031,005	3,277,128	579,324	3,544,117	451,681
April 1954....	6,802,386	1,057,137	3,295,363	594,744	3,507,023	462,393
May 1954....	6,752,376	1,073,865	3,263,439	599,299	3,488,937	474,566
June 1954....	6,804,576	1,083,140	3,313,244	605,899	3,491,332	477,241
July 1954....	6,874,500	1,081,651	3,349,903	600,870	3,524,597	480,781

viduals and businesses. Time deposits of individuals, partnerships, and corporations rose \$7,865,000.

Gross demand deposits of all member banks in the District averaged \$6,874,500,000 during July, up \$69,924,000 as compared with June and \$302,060,000 over July 1953. The June-to-July increase was divided about evenly between reserve city and country banks. Time deposits declined \$1,489,000 during July to average \$1,081,651,000, marking the first reduction in these accounts since March 1952. Reserve city member banks accounted for somewhat more than the total decrease.

Charges to deposit accounts reported by banks in 24 cities of the District virtually were unchanged in July as compared with June but were 5 percent above July 1953. The June-to-July change reflected the net effect of increases for about one-half of the reporting cities and offsetting reductions for the others. The annual rate of turnover of deposits rose from 18.0 in June to 18.1 in July. The rate of turnover for July 1953 was 17.8.

Between July 15 and August 15, member bank reserve deposits at the Federal Reserve Bank of Dallas rose \$112,730,000. Other changes during the month in the condition of the bank included an increase of \$47,582,000 in gold certificate reserves and a decrease of \$34,623,000 in total earning assets. Holdings of Government securities were reduced \$35,476,000, while loans and discounts rose by a relatively nominal amount. On August 15, Federal Reserve notes of this bank in actual circulation totaled \$730,275,000, as compared with \$723,683,000 on July 15 and \$728,863,000 on August 15, 1953.

On August 13 the Treasury announced that investors had exchanged \$7,367,000,000 of the 2½-percent certificates of indebtedness maturing on August 15 and September 15 for the new refunding issues of 1-year 1½-percent certificates of indebtedness and 6¼-year 2½-percent bonds. Exchanges

CONDITION OF THE FEDERAL RESERVE BANK OF DALLAS

(In thousands of dollars)

Item	August 15, 1954	August 15, 1953	July 15, 1954
Total gold certificate reserves.....	\$ 877,173	\$ 588,849	\$ 829,591
Discounts for member banks.....	329	51,870	3,001
Other discounts and advances.....	4,230	428	705
U. S. Government securities.....	938,207	1,178,811	973,683
Total earning assets.....	942,766	1,231,109	977,389
Member bank reserve deposits.....	1,127,315	995,616	1,014,585
Federal Reserve notes in actual circulation.....	730,275	728,863	723,683

NEW PAR BANK

The First State Bank of San Diego, San Diego, Texas, a newly organized, insured, nonmember bank located in the territory served by the San Antonio Branch of the Federal Reserve Bank of Dallas, opened for business on August 9, 1954, and was added to the Par List on August 10, 1954. The officers are: Earl Delaney, President; Walter W. Meek, Vice President; and J. C. Lopez, Cashier.

represented 98.1 percent of the outstanding amount of the maturing securities. Holders turned in \$2,733,000,000, or 98.0 percent, of the August 15 maturity and \$4,634,000,000, or 98.1 percent, of the September 15 maturity in exchange for \$3,808,000,000 of the new bonds and \$3,558,000,000 of the new certificates. Each of the new issues is dated August 15.

On August 12 the Treasury called for redemption on December 15 the 2-percent bonds of 1951-55 dated December 15, 1941. These bonds are outstanding in the amount of \$510,000,000. Upon calling these securities for payment prior to maturity, the Secretary of the Treasury announced that holders may be offered the privilege of exchanging their bonds, in advance of the redemption date, for other interest-bearing obligations of the United States.



Petroleum markets developed a firmer tone in the last half of July and the first part of August, after a pronounced weakness in early July threatened a general break in the crude price structure. Increases in Gulf Coast cargo prices of gasoline and distillate fuel oil were followed by increases in wholesale gasoline prices and the rescinding of voluntary discounts on distillate fuel oil on the East Coast.

These firming tendencies in petroleum markets have been an outgrowth of cutbacks in refinery runs, together with further reductions in August allowables of the major producing states in the Southwest. District refinery crude runs averaged 1,938,000 barrels per day in July, down 64,000 barrels per day from June and the lowest level since the refinery strike

CRUDE OIL: DAILY AVERAGE PRODUCTION

(In thousands of barrels)

Area	July 1954 ¹	July 1953 ²	June 1954 ¹	Change from	
				July 1953	June 1954
ELEVENTH DISTRICT.....	2,940.6	3,184.0	3,080.6	-243.4	-140.0
Texas.....	2,627.0	2,877.1	2,764.2	-250.1	-137.2
Gulf Coast.....	575.4	644.3	606.6	-68.9	-31.2
West Texas.....	1,016.9	1,095.9	1,069.7	-79.0	-52.8
East Texas (proper).....	218.5	249.2	234.9	-30.7	-16.4
Panhandle.....	82.0	75.2	80.1	6.8	1.9
Rest of State.....	734.2	812.5	772.9	-78.3	-38.7
Southeastern New Mexico.....	201.8	192.5	203.6	9.3	-1.8
Northern Louisiana.....	111.8	114.4	112.8	-2.6	-1.0
OUTSIDE ELEVENTH DISTRICT.....	3,341.3	3,419.2	3,405.1	-77.9	-63.8
UNITED STATES.....	6,281.9	6,603.2	6,485.7	-321.3	-203.8

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

in May 1952. Crude runs in the Nation's refineries in July showed a smaller decline than in the District. In the first 2 weeks of August, crude runs in the Nation declined further, while those in the District remained about unchanged.

Reflecting lower allowables in Texas and Louisiana, crude production in the District during the first part of August was at the lowest level in 2 years, averaging 2,875,000 barrels per day, or 66,000 barrels below July and 289,000 barrels less than in August a year ago. In the Nation, production showed an even larger decline; daily average production in the first part of August, at 6,156,000 barrels, was 427,000 barrels below a year earlier.

The District's daily average production probably will show an increase in September, in view of the action of the Texas Railroad Commission in increasing daily allowables 67,235 barrels over the mid-August level. The number of state-wide producing days in Texas was held unchanged at 15, but since September has one less day than August, the result is a rise in the daily allowable.

In contrast with the decline in domestic production, imports rose moderately during July and early August to exceed year-earlier levels for the first time since February. In the 5 weeks ended August 13, imports of crude oil and refined products averaged 984,000 barrels per day, which is 44,000 barrels higher than in the previous 5 weeks and 84,000 barrels higher than in the same weeks last year.

The demand for petroleum products continues to fall below earlier industry expectations. Demand for major refined products at refineries and bulk terminals in the 5 weeks ended August 13 was slightly less than a year earlier. Moderate year-to-year increases in the demand for gasoline and distillate fuel oil were more than offset by substantial decreases in the demand for residual fuel oil and kerosene.

The gasoline stock situation, which has been a major cause of concern in the petroleum industry during the past several months, has shown some improvement recently. Gasoline stocks declined almost 8,000,000 barrels in the 6 weeks ended August 13, a larger decline than has occurred in the same period in most recent years. Nevertheless, gasoline stocks on that date, at 156,300,000 barrels, still were 14,600,000 barrels, or 10 percent, higher than a year earlier. Residual fuel oil stocks continue substantially higher than a year ago. Complicating further the refined products stock situation, an imbalance exists in the regional distribution of stocks, with Middle West stocks being particularly heavy. Crude stocks showed little change during July and early August.

Drilling activity in both the District and the Nation was maintained at record levels during the first half of this year. Well completions in the District in the first half of 1954 totaled 10,512, or 9 percent higher than in the same period last year, according to data in *The Oil and Gas Journal*. The total of 25,868 wells drilled in the Nation was 11 percent higher than last year's first-half total. The number of wild-cat completions, however, was slightly lower than a year earlier in both the District and the Nation.

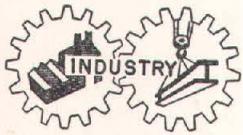
NATURAL GAS: MARKETED PRODUCTION

(In millions of cubic feet)

Area	First quarter 1954	First quarter 1953	Fourth quarter 1953
Louisiana.....	313,900	307,400	321,200
New Mexico.....	127,200	98,600	117,300
Oklahoma.....	171,000	171,500	161,400
Texas.....	1,180,900	1,164,700	1,167,400
Total.....	1,793,000	1,742,200	1,767,300

SOURCE: United States Bureau of Mines.

Marketed production of natural gas in the four producing states lying wholly or partly within the Eleventh District—Louisiana, New Mexico, Oklahoma, and Texas—showed a moderate seasonal increase in the first quarter of 1954. At 1,793 billion cubic feet, the marketed production was 2.9 percent higher than in the first quarter of 1953. This year-to-year increase was smaller than in any previous quarter in the past few years and reflects, in part, some leveling off in the growth of demand from industrial consumers.



Total nonagricultural employment in the five states of the District increased from July to August to reach 3,851,000, with a large portion of the gain caused by seasonal factors.

August was the first month since February that total nonagricultural employment exceeded that of the comparable month last year. However, in August 1953, a series of strikes depressed nonagricultural employment. The July-to-August gain was occasioned largely by increases in construction and trade employment, although there was some improvement in manufacturing employment.

Manufacturing employment rose in August for the third consecutive month, and the estimated total of 712,000 reflects a moderate increase over July. Although manufacturing employment remained at a level approximately 4 percent below the record peak of August 1953, recently there has been some improvement and more is expected. Most of the manufacturing rise in August can be attributed to gains in the apparel, machinery (except electrical), transportation equipment, and stone, clay, and glass products industries. Minor improvements were noted in most other manufacturing categories, with the exception of food processing, which normally suffers a seasonal setback following the peak in June.

NONAGRICULTURAL EMPLOYMENT

Five Southwestern States¹

Type of employment	Number of persons			Percent change June 1954 from	
	June 1954p	June 1953	May 1954	June 1953	May 1954
Total nonagricultural					
wage and salary workers..	3,846,500	3,874,200	3,822,900	-.7	.6
Manufacturing.....	704,900	734,700	700,400	-4.1	.6
Nonmanufacturing.....	3,141,600	3,139,500	3,122,500	.1	.6
Mining.....	234,900	230,700	226,200	1.8	3.8
Construction.....	297,600	299,700	286,500	-.7	3.9
Transportation and public utilities.....	393,300	409,500	390,200	-4.0	.8
Trade.....	977,600	979,400	976,500	-.2	.1
Finance.....	158,500	153,000	156,800	3.6	1.1
Service.....	458,300	449,200	453,300	2.0	1.1
Government.....	621,400	618,000	633,000	.6	-1.8

¹ Arizona, Louisiana, New Mexico, Oklahoma, and Texas.

p—Preliminary.

SOURCE: State employment agencies.

Average weekly hours of Texas manufacturing workers, after a steady decline from January to April, rose to 41.3 in June and are estimated to have increased to 41.4 in July and August. At this level, the average weekly hours of manufacturing workers in Texas would be only slightly below the 41.9 hours worked during August 1953. During June, all major durable goods manufacturers were employing their laborers more than 40 hours per week, with manufacturers of fabricated metals products and stone, clay, and glass products employing their workers over 44 hours per week.

Average weekly earnings of Texas manufacturing workers rose from April through June to reach a record \$72.28, which compares with \$69.30 a year earlier and \$71.82 last December. Based on average weekly earnings, the highest paid workers in this manufacturing group were those employed in crude petroleum production, petroleum refining, and transportation equipment manufacturing.

Unemployment in Texas, after climbing sharply from May to June, declined in July and then leveled off at an estimated 132,000 in August, or 20,000 above July 1953 but 13,000 below the peak in February 1954.

The value of construction contracts awarded in the District in July is estimated at \$105,662,000, down 7 percent from June but 6 percent above July 1953. Residential awards, which reached a record high for the month, are valued at \$49,545,000, about the same as in June and 40 percent higher than in July 1953. On the other hand, nonresidential awards fell 13 percent below both the June total and the year-earlier total to an estimated \$56,117,000.

VALUE OF CONSTRUCTION CONTRACTS AWARDED

(In thousands of dollars)

Area and type	July 1954p	July 1953	June 1954	January—July	
				1954p	1953
ELEVENTH DISTRICT....	\$ 105,662	\$ 99,625	\$ 114,078	\$ 768,487	\$ 708,047
Residential.....	49,545	35,387	49,858	360,811	322,393
All other.....	56,117	64,238	64,238	407,676	385,654
UNITED STATES ¹	1,836,935	1,793,342	1,733,264	11,088,144	9,701,180
Residential.....	745,440	653,407	720,266	4,726,131	3,911,903
All other.....	1,091,495	1,139,935	1,012,998	6,362,013	5,789,277

¹ 37 states east of the Rocky Mountains.

p—Preliminary.

SOURCE: F. W. Dodge Corporation.

Construction contracts awarded in the District in the first 7 months of 1954 are valued at \$768,487,000, up 9 percent from the comparable period last year. Residential awards and nonresidential awards gained 12 percent and 6 percent, respectively.

Expenditures for new construction in the United States rose seasonally in July to a new monthly peak of \$3,513,000,000 and reached a record total of \$20,135,000,000 for the first 7 months of the year, according to preliminary estimates prepared jointly by the United States Departments of Commerce and Labor. Comparing the January-July 1954 volumes with those of a year earlier, private expenditures were up 4 percent, while public outlays were about the same. Increased spending by state and local governments offset a decrease in Federal spending.