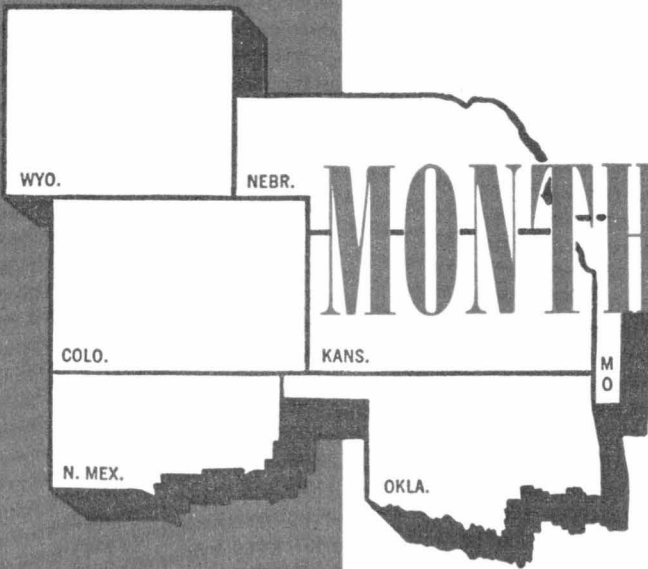


November 1957



MONTHLY REVIEW

In This Issue

- Grain Sorghum —
A Transition Crop? page 3
- District Industrial Growth Accelerated
by Defense Business page 9
- Current Statistics page 16

**FEDERAL RESERVE BANK
OF KANSAS CITY**

Subscriptions to the MONTHLY REVIEW are available to the public without charge. Additional copies of any issue may be obtained from the Research Department, Federal Reserve Bank of Kansas City, Kansas City 6, Missouri. Permission is granted to reproduce any material in this publication.



Grain Sorghum—

A Transition Crop?

FARMERS IN THE Tenth Federal Reserve District have been required to make a number of major adjustments in their farming programs in recent years. Agriculture in the area has been influenced substantially by changing demand, technological developments, abnormal weather, and Government programs.

One result of this mixture of factors operating within the orbit of District agriculture has been a sharp increase in output of grain sorghum in 1957. An almost fivefold increase makes it appropriate to evaluate the current situation with respect to the crop. The question immediately arises as to whether the huge increase in production in 1957 is accounted for largely by factors that are short-lived or whether grain sorghum output will continue at a high level. If the increased output can be viewed as permanent, farmers and businessmen in areas where the crop is grown extensively can make appropriate adjustments based on the longer-term trends. If the increase is temporary, logically the adjustments made should be temporary, also.

In this article, an effort will be made to evaluate the permanence of the major factors responsible for the sharply increased output of grain sorghum in 1957. It will not be possible to quantitatively analyze the relative importance of each major group of factors

because they are interrelated and are of a subjective nature. An analysis should be helpful, however, in evaluating the potential longer-run effects that can be expected insofar as farming and related businesses are concerned.

Demand for Grain Sorghum

Although grain sorghum is used for many purposes, its most dependable outlet has been as a feed grain for livestock. Consequently, it must compete with the other feed grains in both price and feeding qualities. Since grain sorghum is most nearly comparable to corn in nutritive value, its chief competitor is corn.

In past years, some prejudice has developed against feeding grain sorghum. However, research indicates that grain sorghum compares favorably with corn as a feed for livestock. It can be substituted completely for corn, although the total digestible nutrient content in some instances may be slightly less. In those instances, it will take a slightly larger quantity of grain sorghum to obtain a comparable degree of finish. The Agricultural Experiment Station at Hays, Kans., is preparing a bulletin which will summarize results of various feeding experiments pertaining to grain sorghum.

If grain sorghum is comparable to corn in nutritive value, how well it can compete obviously will depend upon price relationships. Although corn and grain sorghum prices

vary substantially, in recent years grain sorghum frequently could have been purchased at a price of more than 10 per cent below the price of corn on the Kansas City market on a pound-for-pound basis. At such a price, grain sorghum has an economic advantage over corn as a livestock feed. Furthermore, grain sorghum has been priced below corn on the Kansas City market quite regularly throughout the post-World War II period.

In addition to being used as a livestock feed, relatively small quantities of grain sorghum also are used for human consumption in the United States. Substantial amounts of sorghum were used for industrial purposes during World War II, but the total quantity used currently is small. Finally, large amounts of the crop have been exported during the past decade. In 1950, 1951, and 1955, more than 70 million bushels — about a third of total production—were exported annually from the United States. On the other hand, as recently as 1953, only 8 million bushels—about a tenth of the previous year's production—were exported. Although part of the low volume of exports in 1953 can be attributed to reduced production, the data also emphasize that export demand for the crop has varied widely.

In summarizing the demand situation for grain sorghum, it should be pointed out that the crop has a wide variety of uses. Its major demand, however, is derived from the fact that it is a keen competitor with corn for the feed grain market. It is a good feed for finishing livestock, and if its price is favorable in relation to the price of corn, large quantities of grain sorghum will be used both in the domestic and export markets. If the price becomes unfavorable to the buyer in relation to corn, demand will decline rapidly as corn will be substituted for grain sorghum. To maintain a strong demand for his product, the grain sorghum producer must be able to put his product on the market at a price comparable to the price of competing feed grains.

Changing Trends in Demand for Farm Products

A growing population, increasing incomes, and changing consumer tastes have caused substantial shifts in the demand for agricultural products. Per capita consumption of cereal products has declined substantially during the past half century. On the other hand, per capita consumption of beef has increased during this period. These changing demands for agricultural products have had a significant bearing on agricultural production in the Tenth District, resulting in increased emphasis on feed production and decreased emphasis on wheat production.

Population shifts in recent years have tended to favor the areas where grain sorghum production is well adapted. Population growth since the beginning of World War II has been relatively large in the western states and in Texas. These areas—in which feeder cattle production also is important—generally are contiguous to the areas of intense grain sorghum production. Thus, some of the feeder cattle that formerly were shipped to the Corn Belt for feeding and then to the eastern markets now are fed grain sorghum in the western areas and consumed in the western states or Texas.

Dietary trends also have tended to favor the grain sorghum areas. Historically, cattle production has been the major livestock enterprise in most areas where grain sorghum production is important. Hog production has been emphasized more heavily in the Corn Belt. In a study made at Iowa State College, it was concluded that demand for beef has been increasing while that for pork has been declining in relation to disposable consumer income. Major reasons listed for this change were: (1) urban consumers—who eat more beef per capita than farmers—are becoming a relatively more important part of total population; (2) occupations of both rural and urban people have become more sedentary, which has caused

consumers to demand more lean meats and less fatty foods; (3) higher incomes have caused consumers to increase their purchases of beef relative to those of pork; (4) disposable income in the United States has become more equally distributed; and (5) vegetable oils have offered increasing competition with lard. Since cattle production is relatively more important in the areas of grain sorghum production, the trend toward higher beef consumption tends to place the grain sorghum areas in a more favorable competitive position.

Furthermore, in recent years, consumers have been tending to demand more grain-fed as compared with grass-fed beef. However, the tendency has been toward a greater consumption of short-fed beef as compared with long-fed, or prime, beef. The trend toward increased consumption of short-fed beef has been particularly noticeable in the west and south. Since the grain sorghum regions have tended to emphasize short feeding and the contiguous market is demanding more of this kind of beef, this changing consumption pattern has favored these areas.

Although farmers in the areas of intensive grain sorghum production probably will continue to face keen competition from feeders in other areas, most of the major factors influencing demand in recent years have improved their competitive status. Not too many years ago, it was extremely difficult for a feeder in the Rocky Mountain or High Plains area to compete with feeders in the Corn Belt. Today, many of them are competing on favorable terms. To the extent that this change can be attributed to changing trends in demand, the adjustments that have been made can be viewed as having some degree of permanence.

Technological Developments

Research workers at the Experiment Stations in Garden City and Hays, Kans., were interviewed pertaining to present and potential developments in grain sorghum produc-

tion. Much of the subsequent material is based upon information obtained in those interviews. Although considerable progress has been made in improving the methods for producing and utilizing grain sorghum, the work is in its infancy and substantial improvements can be expected in the future. One of the more recent developments that seems promising is the work that has been done toward developing satisfactory hybrids.

Hybrid grain sorghums were planted on a substantial acreage this year for the first time. If recommended hybrids are used, there is little question that seedling vigor is better and that yields can be increased from 15 to 30 per cent. On the other hand, hybrids that have been developed to date tend to have weak stalks and, thus, may lodge. Scientists attribute this to the fact that recommended hybrids currently developed have weak-stalked parents and produce heavier heads.

Because of technical complications that have confronted plant breeders, the best hybrids commonly available at present have been developed by using Combine Kafir 60 as the male sterile plant and crossing it with either Redbine 60, No. 7078, or Plainsmen. These varieties tend to have weak stalks and this trait has been transmitted to the hybrids that are most commonly recommended.

Plant breeders feel confident that with more time they will be able to develop male sterility in some variety, such as Westland, which has a strong stalk. Once this has been achieved, it is anticipated that satisfactory strong-stalked hybrids can be developed.

Research workers point out that potentially many other advantages might be achieved through plant breeding. It may be possible to develop hybrids that are resistant to most insects and diseases or, perhaps, that are more drought resistant. In areas with short growing seasons, it is hoped that early-maturing and high-yielding hybrids can be developed. Although much has been accomplished in the

development of hybrids, the work is just getting well started. If certain of the potential achievements can be accomplished through plant breeding, grain sorghum will become a much keener competitor with other crops in the modern farm economy.

Another problem that continues to command considerable effort in the field of research is that of controlling weeds. This is a particularly difficult problem in grain sorghum production, since the crop cannot be planted in the spring until the soil is relatively warm. If it is planted in a cool soil, the seed will not germinate. If planted in a warm soil, many weeds grow more vigorously in the early stages and frequently become extremely obnoxious and must be controlled. Control is particularly difficult if the crop is planted in narrow rows with a grain drill, since it cannot be cultivated. A rotary hoe can be used effectively if the operation can be timed carefully. Frequently, the rotary hoe cannot be used at the proper time because of weather conditions or for other reasons, and its effectiveness diminishes rapidly.

In view of this deficiency pertaining to the use of the rotary hoe, efforts have been made to control weeds by planting the crop in wide rows and cultivating it, or by using sprays. There are objections to the use of both methods. Farmers familiar with wheat production prefer planting the crop with a grain drill in narrow rows. Furthermore, there is some experimental evidence that yields are higher if the crop is planted in narrow rows if all other factors are the same. The major objections to planting in narrow rows are weed control and the tendency to plant the crop too thickly if this method is used. Because of the weed control problem, the experiment stations generally plant grain sorghums in wide rows so the crop can be cultivated. The extra cultivations add to the cost on a per-acre basis, and it still may not be possible to control weeds growing in the rows with the sor-

ghum plants. Currently, in spite of the difficulties, this method is effective.

Much experimental work has been done on the use of sprays for weed control. If sprays with proper selectivity can be developed, this method would be effective and efficient in controlling weeds. Furthermore, it would enable farmers to use the currently popular method of planting the crop with grain drills without undue concern about the weed control problem. To date, however, severe limitations affect the use of sprays for controlling weeds in sorghum production. In fact, improper use of sprays can result in destruction of the crop. Improper spraying has resulted in head sterility and, in some cases, in non-emergence of the heads. The entire principle of spraying for weed control is based upon the use of selective sprays. Since sorghum is a member of the grass family, the sprays that will not damage the sorghum plants are not effective in controlling most obnoxious grasses. Even if the best known techniques are used in spraying for weed control, the root structure of the sorghum plant is affected. Consequently, spraying for weed control currently is recommended only for use under emergency conditions and if extreme caution is followed.

The two major problems involved in harvesting the crop are to obtain the heads that have lodged because of weak stalks and to harvest at a time when the grain is dry enough so it can be stored safely. The problem of obtaining the heads that have lodged is of particular interest currently because the hybrids lodge more severely than do some of the standard varieties. The use of extension bars and pick up guards on combines are helpful in securing a large proportion of the heads, but in many instances it is difficult to pick up the grain. The eventual solution probably will be found in developing strong-stalked hybrids that will not lodge.

No completely satisfactory solution has been

found to the problem of harvesting the crop when the moisture content is low enough that the grain can be stored safely. Currently, two approaches are being made toward finding the most feasible solution. First, research workers are attempting to develop desiccants which can be applied to the plant after the grain has matured. This research is relatively new and developments to date are questionable. Second, research is being conducted on the use of dryers for reducing the moisture content after the grain has been harvested. Dryers have been used effectively. However, they are not available to many farmers and drying grain is an additional expense. Furthermore, if the grain is wet when combined, it is more difficult to thresh and more of it is cracked or crushed in the threshing process.

Although a number of problems continue to persist in grain sorghum production, technological developments have made the crop an excellent one for many farmers. Research now being done offers promise of solving many of the problems that continue to face producers. As these problems are solved, production of the crop can be expected to expand.

Weather Conditions

There is little question but that the acreage planted to grain sorghum in District states in 1957 was influenced significantly by weather conditions. Drought had prevailed throughout most of the District during the preceding 5 years. In some areas, the precipitation deficiency averaged more than 20 per cent annually during the 5-year period from 1952 to 1956, inclusive. Crop and livestock production was curtailed seriously and many farmers in these areas were in serious financial condition because of drought. Thus, with adequate to excessive rainfall during the spring months of 1957, farmers were looking for methods by which depleted cash reserves could be replenished rapidly. Throughout much of the District, grain sorghum production appeared

to offer the best probability of providing a remunerative crop most quickly. Production from the crop could either be fed to livestock or sold as a cash crop.

That grain sorghum was bountiful in District states in 1957 is evidenced by the production figures. Farmers in the seven District states produced an estimated 251 million bushels of grain sorghum, according to the October crop report. This compares with a production of 55 million bushels in 1956 and a 1946-55 average production of 54 million bushels. Thus, grain sorghum production in District states in 1957 was 196 million bushels larger than in 1956 and 197 million bushels larger than average. This compares with a 1957 wheat crop in District states that was 59 million bushels below 1956 output and 140 million bushels below the 1946-55 average.

To the extent that the increased grain sorghum production in 1957 can be attributed to abnormal weather conditions, the present shift in production is temporary. Thus, any adjustments made to utilize the output attributable to weather conditions most effectively, should be of a temporary nature. In the past, a large part of the grain sorghum produced in the District was sold as a cash crop. A relatively small proportion has been fed. This probably is due to the fact that grain sorghum commonly has been viewed as a catch crop to be planted if the wheat crop has failed. Many farmers have not made an effort to devise dependable feeding outlets for the crop. On the other hand, in more recent years, technological advancements have made the crop a more favorable competitor of wheat and, with more dependable production, feeding of the crop can be expected to increase.

Government Programs

The acreage planted to different crops has been influenced by Government programs at various times since the early 1930's. Generally, the effect—insofar as agriculture in the Tenth

Grain Sorghum—A Transition Crop?

District is concerned—has been to reduce the acreage planted to wheat, cotton, corn and, at times, to some other crops. In years when acreage allotments released a substantial acreage from the basic crops, production of certain other crops frequently was increased. Farmers in areas where summer fallowing was practiced extensively were in a particularly flexible position with respect to increasing the grain sorghum acreage.

With soil moisture conditions particularly unfavorable for wheat production throughout most of the central and southern High Plains regions in the fall of 1956, farmers in these areas were encouraged to participate heavily in the acreage reserve program of the Soil Bank Act. This was particularly true since land placed in the acreage reserve program could be fallowed and planted to winter wheat in the fall of 1957 for harvest in 1958. Any other crop acreage remaining could be planted to grain sorghum. Since fallowing is a recommended practice throughout much of this area, and the acreage that could be planted to wheat was severely restricted, a huge acreage was available for planting to grain sorghum, even though compliance with the acreage reserve program was heavy. Thus, the programs that prevailed in 1957 encouraged farmers to expand the acreage devoted to grain sorghum production.

Conclusions

Grain sorghum production has expanded at a phenomenal rate. The most recent estimates indicate that production for the Nation in 1957 will be about three times the 10-year average and substantially above previous record highs. Since the crop is of considerable

importance throughout much of the Tenth District, bankers, farmers, and others are interested in its potential within the region.

Technological advancements and changing trends in demand indicate that the crop has considerable potential for increasing agricultural output within the District. It must be remembered, however, that temporary factors also were influential in the huge boost in output in 1957. Therefore, production probably will not be maintained at this year's levels until some time in the future. With additional research, the crop potentially could become an excellent crop for more farmers in the District. If production can be expanded at a more stable rate, an expansion in livestock production within the District can be expected.

Grain sorghum also was of substantial importance in stabilizing agriculture in many parts of the District in 1957. The decrease in income because of reduced levels of wheat production was about offset by the increased output of grain sorghum. Furthermore, to the extent that the crop encourages increased production of livestock, more stability will be introduced into District agriculture.

Finally, it should be pointed out that although the output of grain sorghum in the District was large in 1957, in many instances the crop failed. Frequent causes of failure appeared to be planting too thickly, planting at the incorrect time, inadequate moisture, improper weed control, and improper variety. Although grain sorghum is being developed into an excellent crop for much of the Tenth District, additional research and educational work remain to be done before it can be produced most satisfactorily.

District Industrial Growth

Accelerated by Defense Business

THE PATTERN OF industrial activity in the Tenth Federal Reserve District during recent years has been shaped to a large extent by a relatively few major developments. For the most part, the primary impact has been in the metropolitan centers. Although the economic base of these areas has been shifting gradually toward greater industrialization, the most significant changes in the levels of factory activity and employment can be traced to participation in national defense programs. Fluctuations in demand for different types of defense goods have been reflected in substantial changes in manufacturing activity in several of the District's major cities. In others, where defense business has not played a major role since World War II, moderate changes have been typical.

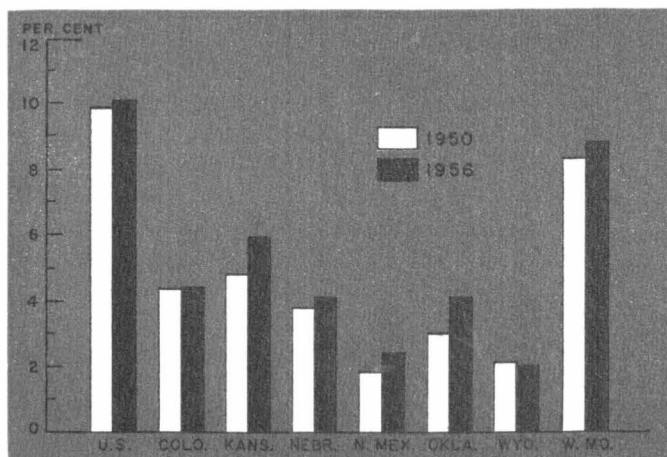
The primary purpose of this article is to identify some of the major industrial developments in metropolitan areas since 1950 and to point out their contribution to the District's industrial economy. In this respect, the following discussion is a continuation of a July 1957 *Monthly Review* article which was aimed at measuring the extent of postwar growth in the District as compared with the Nation. This article also may be viewed as complementary to the December 1952 study of industrial developments in the 1947-52 period.

Progress in Industrialization

The extent of industrial growth in the various District states may be indicated by changes in the proportion of the population earning its livelihood from manufacturing operations. Since 1950 the ratio of manufacturing employment to population has in-

Manufacturing Employment as a Per Cent of Population

U. S. and District States



SOURCE: U. S. Bureau of Labor Statistics, U. S. Bureau of the Census, State Employment Security Agencies, and Federal Reserve Bank of Kansas City.

creased in all states except Wyoming, with Kansas and Oklahoma showing particularly good gains. In the Western Missouri portion of the District, dominated by Kansas City, St. Joseph, and Joplin, the ratio of factory employment to population is higher than in the other six District states which are characterized by vast areas having little industrial activity. The top rate among these states—6 per cent of Kansas' population hold factory jobs—is substantially lower than the 10 per cent average for the Nation.

Kansas also ranks first in number of manufacturing workers employed, with 28 per cent of the District total. Manufacturers in Western Missouri provide an additional 19 per cent and a similar share of industrial jobs is in Oklahoma. Colorado accounts for 16 per cent of the District total, Nebraska 12 per cent, and the remaining 6 per cent of factory employment is in New Mexico and Wyoming.

Manufacturing in Metropolitan Areas

The metropolitan areas continue to be the focal point of industry in the District. At mid-1957, plants in the 11 metropolitan areas accounted for about 72 per cent of total factory employment. In the 1950-57 period, more than four fifths of the District's net increase in factory jobs reflected gains in metropolitan industry payrolls.

The proportion of industrial activity concentrated in the larger cities varies widely among the District states. Currently, 83 per cent of Colorado's factory workers are employed in Denver and Pueblo. In Nebraska, 72 per cent of manufacturing employment is centered in the Lincoln and Omaha areas while in Kansas about 71 per cent of the industrial jobs are found in Wichita, Topeka, and Kansas City. A somewhat smaller proportion of Oklahoma's factory jobs, about 54 per cent, are in Tulsa and Oklahoma City. Similarly, 53 per cent of New Mexico factory workers are in Albuquerque. In the Western Mis-

souri portion of the District, factory employment in Kansas City and St. Joseph accounts for nearly 90 per cent of all industrial jobs.

In Colorado, Kansas, New Mexico, and Oklahoma, concentration in large cities has increased since 1950. Sizable gains in Wichita, Albuquerque, Tulsa, and Denver have contributed to this trend. On the other hand, Nebraska metropolitan areas, as a result of Omaha's declining share, now account for a slightly smaller proportion of factory employment than in 1950. The proportion of Kansas industrial workers employed in Kansas City also has declined substantially.

The Importance of Defense Industries

While much of the increase in the District's industrial output during the past decade has stemmed from expanded production of national defense items, the pattern of activity has varied markedly among the manufacturing centers. Plants in several areas have been working on projects identified with long-range preparedness since before the Korean conflict. In these cases the chief impact of the war was to accelerate production. Since then, the projects have continued. In other areas, where Korean war needs initiated the activity, the boom in defense business was short-lived. In still other areas, new defense production facilities only recently have been completed or are now under construction. There, the full impact of the new business may not be felt for several years.

Wichita

The District's most important defense industry, aircraft, has played a vital role in boosting this region's industrial activity. While it has been a major stimulus in several cities, the most significant impact has fallen on the Wichita economy. Three sizable airplane companies, two of which produce planes for civilian as well as military use, dominate the industrial scene in Wichita. These firms have operated at high levels for several years and

since 1951 they have provided nearly three fourths of all manufacturing jobs in the area.

The aircraft industry remained an important sustaining force in the Wichita economy even during the immediate postwar years when defense activity fell sharply from the wartime heights. The reactivation in the late 1940's of a major facility to produce jet bombers, coupled with the increase in demand for smaller planes, resulted in a sharp climb in factory employment. Since then, a steady stream of military contracts for planes, sub-assemblies, and modernization programs has kept Wichita's aircraft activity at high levels.

In 1950, aircraft employment averaged about 15,000—constituting about 57 per cent of the manufacturing work force. At mid-1957, aircraft workers numbered about 47,000 and total factory employment, at 62,000, was more than double the 1950 level. This represented an all-time high for the aircraft industry as well as for total industrial employment in the area. The 1950-57 gain in aircraft accounted for nearly 90 per cent of the net increase in total factory jobs at Wichita during the period. Although most other industries in the area also expanded, their growth has been overshadowed by the magnitude of the aircraft developments. Perhaps the most significant growth among the smaller sectors occurred in machinery manufacturing. Employment in machinery plants more than doubled between 1950 and 1957, moving up to challenge food processing as the second most important industry in Wichita. Part of this increase can no doubt be related to the high level of production in the aircraft industry. Subcontracting of machined and fabricated components along with production of supplies for the airplane companies constitutes a major source of business for many of Wichita's smaller plants.

Tulsa

In Tulsa, as in Wichita, the resumption of military aircraft production has made the

outstanding contribution to a higher level of industrial activity in recent years. The Tulsa operation is substantially smaller than the combination of installations in Wichita, but aircraft employment is quite important to Tulsa's industrial economy—providing about 30 per cent of the factory jobs at mid-1957. Moreover, growth in this industry accounted for about two thirds of the net increase in employment at manufacturing establishments during the 1950-57 period.

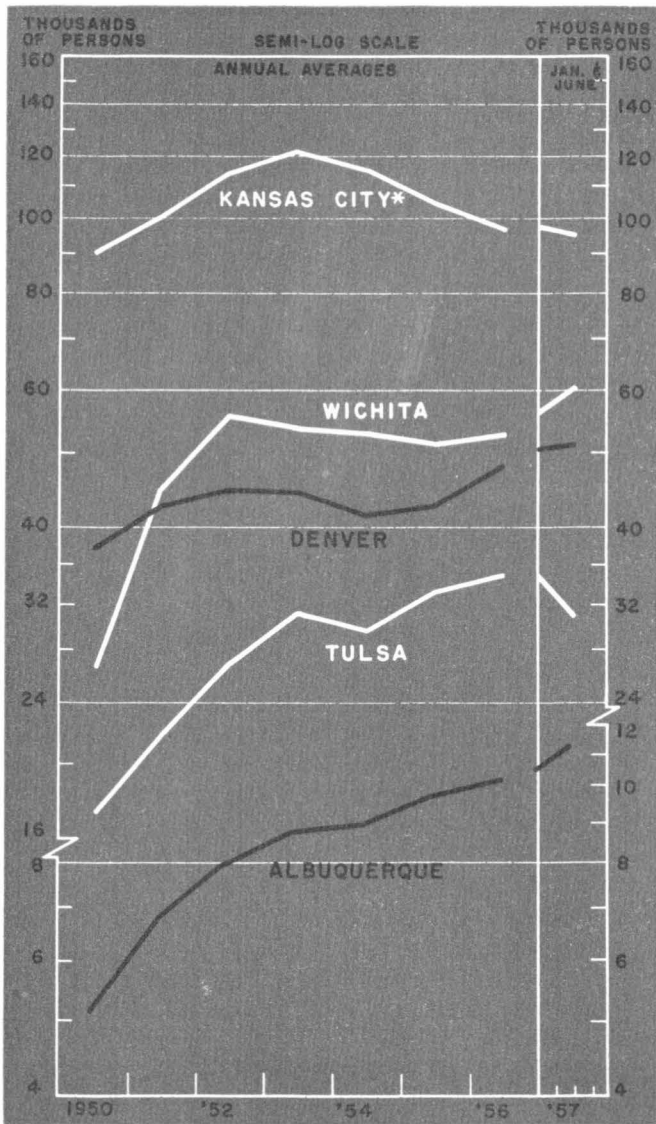
The impetus behind this expansion also came from contracts to build and modernize jet bombers. After reactivation of a wartime aircraft assembly facility in early 1951, manufacturing employment shot up nearly 70 per cent within 3 years. Since 1953, factory jobs in the Tulsa area have numbered between 29,000 and 35,000. Although aircraft employment has edged downward for over a year and as a result factory jobs have fallen substantially below the early 1956 mark, the current level of manufacturing employment is about 80 per cent above the 1950 average.

The metal-processing and machinery industries also have contributed substantially to Tulsa's industrial progress. Employment in both sectors has increased about 65 per cent since 1950. At midyear, metal-processing firms employed about 17 per cent of all factory workers in the area, with the majority working in fabrication plants. Tulsa's machinery producing industry, which provides about 19 per cent of the area's factory jobs, is heavily oriented toward the petroleum industry. Currently, nearly half the machinery workers are engaged in producing oilfield and refinery equipment.

Denver

The Denver area did not share in the sharp increases in defense business which occurred at Wichita and Tulsa during the early 1950's. Major defense projects in Denver during the period included production of rocket shells, chemical warfare gases, foot lockers, and bomb

**Manufacturing Employment Reflects
Defense Production**



*Series being revised. Preliminary information indicates somewhat higher levels of employment during recent years.

SOURCE: State Employment Security Agencies.

NOTE: On a semi-logarithmic scale, equal slopes indicate equal rates of change.

cases. As a result of these and smaller programs, factory employment in the area rose about 22 per cent between 1950 and the late 1952 peak—a level which was not sustained. More recently, however, industrial activity has received a boost from the location of several new defense plants in the area. The current boom in defense work is likely to be Denver's most significant industrial development of the postwar period.

Although a sizable Atomic Energy Commission plant was completed at Rocky Flats late in 1953, the current upswing got its big push in 1955. Early in that year the impending construction of a large aircraft parts plant was announced. In the fall of the same year, plans were released for a new electronics plant and a guided missile production facility. These new firms have been a major source of industrial expansion in the subsequent period.

Since construction is not yet completed on some of the new facilities, the full impact of the new business is yet to be determined. Nevertheless, the influence of the new plants is already showing up in factory employment data. The Korean peak was regained in the spring of 1956 and subsequent additions have boosted payrolls another 11 per cent. At mid-1957, factory employment in the Denver area stood about 37 per cent above the 1950 average. In recent years, the paper, printing, and publishing industry also has contributed substantially to higher levels of factory employment.

Albuquerque

In Albuquerque, the ordnance industry—the strength of AEC contracts—has been the center of industrial expansion. In conjunction with the growth in ordnance, the number of factory jobs in the metropolitan area has more than doubled since 1950. Approximately 70 per cent of all Bernalillo County factory employees are engaged in research and development work for the AEC. As a result of this development in the Albuquerque area, ord-

nance and accessory manufacturers have become the leading employers of factory workers in New Mexico.

Because of the concentration of AEC and military research and development work in the area, a number of additional plants have sprung up to take advantage of subcontracting and supply opportunities. The rapid increase in the number of electronic equipment firms in the Albuquerque area is a good example of this trend. In some cases, out-of-state firms have set up branch plants for production of specialized items for local contractors.

It is apparent that the significant change in Albuquerque's economy is closely related to Government-sponsored industrial activity. In no other area of the District, except perhaps in Wichita, has national defense business played such an important part in stimulating and sustaining industry.

Kansas City

In contrast with those areas in which defense business has continued to provide a substantial volume of employment, the Kansas City area has experienced a steady decline from the 1953 peak. Expanding production in defense lines in the early 1950's pushed factory employment to a high level by mid-1953. After a few months of sustained production at this pace, however, defense employment fell off rather sharply, carrying total factory employment down with it.

These developments in Kansas City can be identified closely with fluctuations in defense business. In 1949, space was leased in a wartime facility for an AEC project. Shortly after the outbreak of the Korean war, the Lake City Arsenal and Sunflower ordnance works were reactivated. Subsequently, contracts were let for production of jet fighter planes at a wartime aircraft plant that had been converted to auto production. About the same time, a new facility, eventually intended for auto production, was completed and tooled up for fabrica-

tion of jet bomber wings. Meanwhile, output of aircraft engines was stepped up at another plant. Under the impetus of these and other smaller projects, factory employment in the Kansas City Metropolitan Area topped 123,000 at mid-1953—an increase of 37 per cent over the 1950 average. In the same period, employment more than doubled in those industries working on major contracts for defense items.

After holding on a high plateau during the latter half of 1953, defense employment began slipping downward and, by January 1955, had declined nearly 30 per cent from the peak. During 1955, defense employment was cut nearly in half as the jet plane contract was completed and production in most other defense industries tapered off. As a result of the sharp drop in defense business, total factory employment at the end of the year was only about one eighth higher than the 1950 average.

During 1956 and on into 1957, industrial employment edged downward further, although the decline was moderate. In recent months, the number of factory jobs in the metropolitan area has held close to year-ago levels.

Despite the rapid rise and fall in industrial activity, employment in most Kansas City factories is currently above the 1950 average. For example, the ordnance industry now provides substantially more jobs than in 1950. A major factor in this development has been the continued high level of employment under an AEC contract. Considerable expansion also has occurred in nonelectrical machinery, due in part to the construction of a new pump and engine plant. In the chemicals, electrical machinery, printing and publishing, primary metals, and stone, clay, and glass industries, significant growth was accomplished through building new plants and major additions to old facilities. Among the major expansions scheduled for the near future are a new steel rod mill and a telephone equipment plant.

On the other hand, employment is substantially below the 1950 average in the motor vehicle and food-producing industries. The 25 per cent decline in food manufacturing, Kansas City's largest industry, has centered in the meat-packing sector. Flood damage caused one major plant to close down in 1951 and in the remaining firms employment has continued to decline. By mid-1957, meat industry jobs had fallen more than 40 per cent from the 1950 level. The lower level of motor vehicle employment reflects in part reduced production schedules for some of the models assembled in Kansas City. In most of the area's other manufacturing industries, employment levels are not substantially different from the 1950 averages.

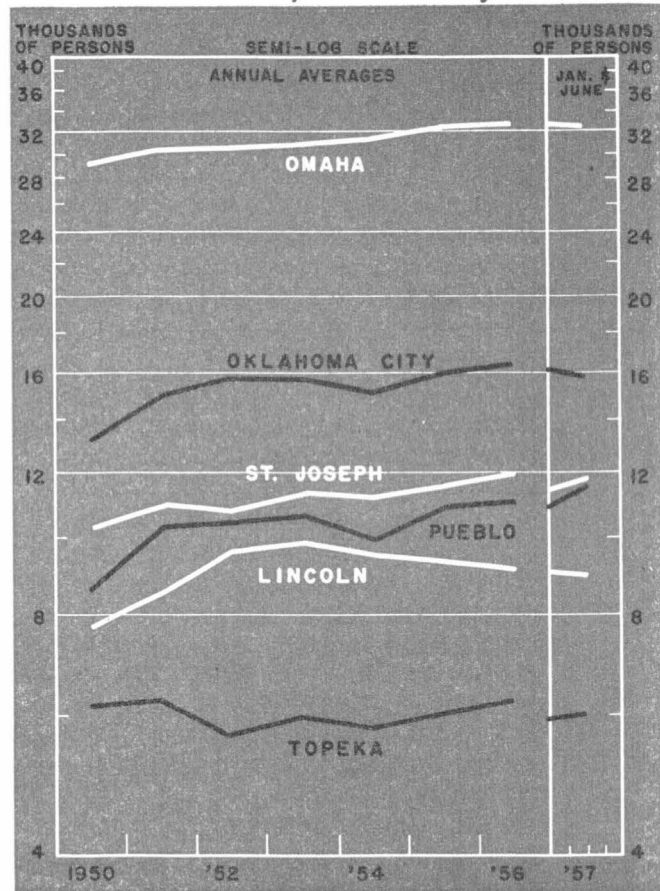
Moderate Growth Characterizes Other Areas

The preceding five metropolitan areas have in common the fact that defense business has played a major role in shaping the pattern of their industrial activity during recent years. While the impact has varied in timing and relative importance, in each case the consequence of sizable national security purchases warrants emphasis. In most of the other District metropolitan centers, industrial growth has been at a slower and steadier pace. Significantly, defense business has been less important in these cities.

Omaha

Omaha exemplifies the gradual industrial growth in the metropolitan areas which have received little defense business during recent years. While the number of manufacturing workers in the area has increased steadily since 1950, the gain over the span has totaled only 11 per cent—an average of less than 2 per cent a year. This is approximately the same as the rate of growth for the Nation. The reason for this more gradual development lies in the fact that over half of Omaha's factory employment is provided by the food industry and this sector has shown very little

Manufacturing Employment In Areas With Little Defense Industry



SOURCE: State Employment Security Agencies.

NOTE: On a semi-logarithmic scale, equal slopes indicate equal rates of change.

growth during recent years.

Employment in the machinery and equipment sector increased about 70 per cent—the most substantial gain in industrial employment in the Omaha area over the 1950-57 period. This industry employs 13 per cent of the area's factory workers and ranks second to the food industry in terms of industrial employment. The steady expansion of this sector was interrupted by the 1953-54 recession but good gains have been made in the last 2 years.

Employment in Omaha's metal industries, as well as in printing and publishing, also has climbed above the 1950 average. Each employs about 8 per cent of the area's factory workers. Metalworking jobs, boosted by the location of a new can plant, increased about 25 per cent and a similar gain was marked up in printing and publishing. The chemical industry also received a boost from the construction of several new plants in the area, including a large facility for producing ammonium nitrate and urea. The most significant current project in Omaha is the construction of a new plant which will produce telephone equipment.

Oklahoma City

A similar telephone equipment factory is scheduled for the Oklahoma City area. A pilot plant to be used initially for employee training and later for production of components is now under construction. When production gets under way it will probably rank as one of the largest employers in the metropolitan area since the manufacturing industry in Oklahoma City is characterized by a large number of relatively small plants. In 1954, according to the *U. S. Census of Manufactures*, nearly three fourths of the area's factories employed less than 20 workers and only 30 plants had more than 100 on their payrolls.

Total factory employment in Oklahoma City is currently about one fifth higher than in 1950 with most of the growth occurring in the early years of the decade. Since 1952, there has been little change in total industrial employment or in the major components. Employment in foods has declined slightly from the 1952 level, while small gains have been marked up in printing and publishing, metal processing, and other manufacturing.

St. Joseph, Pueblo, Lincoln, Topeka

Industrial growth in the smaller metropolitan areas—St. Joseph, Pueblo, Lincoln, and Topeka—also has been less spectacular than

in the District's defense centers. In all except Topeka, however, factory employment is currently higher than in 1950. The number of industry jobs has increased about one third in Pueblo and about one sixth in St. Joseph and Lincoln.

Much of Pueblo's industrial growth has occurred in the steel industry—the dominant business in the area. Substantial expansions in capacity, including a new tube mill installed in 1953, have been accompanied by rising employment. A sharp gain in the number of nonelectrical machinery jobs indicates growth in that industry, also.

In the St. Joseph area, gains in the electrical equipment, fabricated metals, food, and chemical industries have contributed most to the increase in factory jobs since 1950. Consolidation of production in St. Joseph by a decorative light manufacturer has boosted employment in the electrical equipment industry to about twice the 1950 level. Establishment of a wire rope factory in the area has provided more jobs in the fabricated metals industry.

A number of the Lincoln area's major industries—foods, printing and publishing, rubber, communications equipment, and transportation equipment—have added to their payrolls since 1950. Early in the decade, the instruments industry also added more capacity and boosted employment under the impetus of defense contracts. More recently, however, declining employment in this industry has more than offset gains in other sectors.

The pattern of industrial activity in Topeka also has been stabilized by offsetting events. A decline in food processing, attributed to the closing of a major meat-packing plant following the 1951 flood, has been offset by expansion from time to time in the city's tire manufacturing plant where employment has about doubled since 1950. Throughout the period, employment in the area's third major industry, printing and publishing, held quite

stable. A new cellophane plant, currently under construction near Topeka, should provide a boost to future industrial activity.

Conclusion

District metropolitan areas, in acquiring greater economic diversification through increased industrial activity, have traveled a variety of paths. The production of defense items has been important in several of the major centers. Some have found defense business to be a supporting element over a considerable period of years; others have experienced the changing fortunes which may result when industrial expansion is strongly based on military production. At the same time—during the 1950's—other major cities

have been influenced little by national defense commitments and, for the most part, they have grown at a moderate rate.

Many smaller cities also have contributed to industrial expansion in the District. Growth in the nonmetropolitan areas naturally has been characterized by small new plants and modest expansions of established facilities. Thus, the effect on the District picture has been overshadowed by developments in the larger manufacturing centers. Nevertheless, the many new industries which have sprung up in the small cities of the District during recent years, along with the increased capacity at existing plants, have been an integral part of the trend toward greater industrialization in this area.

BANKING IN THE TENTH DISTRICT

District and States	Loans				Deposits			
	Reserve City Member Banks		Country Member Banks		Reserve City Member Banks		Country Member Banks	
	Sept. 1957 Percentage Change From							
	Aug. 1957	Sept. 1956	Aug. 1957	Sept. 1956	Aug. 1957	Sept. 1956	Aug. 1957	Sept. 1956
Tenth F.R. Dist.	+1	+3	+1	+2	+1	-1	+1	+1
Colorado	+1	+5	+1	+3	+1	†	+2	+2
Kansas	+1	+4	†	-6	-1	+2	-1	-1
Missouri*	†	-1	-1	+2	†	-2	+1	+1
Nebraska	+1	-1	+2	+5	+1	-1	†	-1
New Mexico*	**	**	+5	+13	**	**	+2	+5
Oklahoma*	+3	+7	+1	+2	+2	-2	+2	-1
Wyoming	**	**	-1	+10	**	**	+1	+2

*Tenth District portion only. **No reserve cities in this state. †Less than 0.5 per cent.

PRICE INDEXES, UNITED STATES

Index	Sept. 1957	Aug. 1957	Sept. 1956
Consumer Price Index (1947-49=100)	121.1	121.0	117.1
Wholesale Price Index (1947-49=100)	118.0	118.4 r	115.5
Prices Rec'd by Farmers (1910-14=100)	245	248	236
Prices Paid by Farmers (1910-14=100)	296	295	287

r Revised.

TENTH DISTRICT BUSINESS INDICATORS

District and Principal Metropolitan Areas	Value of Check Payments		Value of Department Store Sales		*Value of Residential Building Permits	
	Percentage change—1957 from 1956					
	Sept.	Year to date	Sept.	Year to date	Sept.	Year to date
Tenth F.R. Dist.	+9	+6	+2	+1	+16	-2
Denver	+13	+8	+3	+1	-24	-11
Wichita	+16	+9	+5	+4	-25	-8
Kansas City	+8	+5	+3†	-1†	-37‡	-18‡
Omaha	+10	+2	+3	+3	+36	-9
Okla. City	+3	+2	+4	-2	+72	-1
Tulsa	+6	+10	-2	+2	+17	-33

*City only. †Kansas City, Mo., only. ‡Kansas City, Mo., and Kans.