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## PROBLEMS ASSOCIATED WITH THE UTILIZATION, CONSERVATION, AND CONTROL OF WATER RESOURCES IN THE SOUTHWEST

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Water resources of the Southwest have been an important factor in the rapid increase in population and the growth of industrial activity which have characterized the development of the region. An expanding population and industry, however, have placed a heavy drain on the water resources of the area. In many sections the demand for water now exceeds the supply, and continued prosperity and future growth may depend upon increasing the volume of usable water. Moreover, conservation of soil—a basic consideration in the management of water resources—has been neglected, with the result that the fertility of the land has been depleted and the problem of providing adequate water supplies has been complicated further. In many humid areas the supply of water can be enlarged by further exploration or through conservation and more efficient utilization of existing supplies, for, as pointed out in the article entitled "Water Resources in the Southwest" which appeared in the July 1 issue of the *Monthly Business Review*, some water supplies in these localities have not been developed and others are not being utilized completely. In other areas, however, particularly in the arid western portion of the region where water of usable quality is scarce, it may be impossible to increase the available supply, or, if it can be increased, costly storage and diversion facilities will be required.

### Utilization of Water

The rate of increase in water requirements in the Southwest is indicated by a report of the United States Geological Survey which estimates that water demands in Texas increased over 7,000 percent between 1890 and 1940, although the population of the State increased only 287 percent. The industrial expansion and population growth in the region during the war and postwar periods caused water requirements to increase at an even greater rate since 1940. Municipalities, industrial plants, and operators of irrigated farms are the three most important groups of consumers of water in the Southwest. The recent rapid growth of the urban population has expanded the demand for water to fill municipal requirements. Numerous cities and towns have been forced to develop new sources of supply, and many others are still confronted with occasional shortages of water. In some instances existing industrial plants have increased their requirements so greatly that they also have had to develop new sources, and in other cases shortages of water have prevented the construction of new plants. The sharp expansion of irrigation in the Southwest also has been an important factor in increasing water requirements. In Texas, the irrigated area, which rose from 895,000 acres in 1939 to about 2,400,000 acres in 1947, now accounts for 8 percent of the harvested acreage in the State. Substantial increases in irrigated acreage also occurred in Arizona and New Mexico during that period.

Most towns and cities of the Southwest secure water from ground sources. In Texas, 681 of the 837 communities dependent upon public water supplies secured water entirely from ground sources in 1945, and the total withdrawal averaged about 270,000,000 gallons a day. According to the Texas Board of Water Engineers, in the Houston area alone the amount of water taken from ground sources for public use rose from 38,000,000 gallons a day in 1934 to 64,000,000 gallons daily in 1945; at Galveston, the daily withdrawal increased from 4,600,000 gallons in 1935 to 10,300,000 gallons in 1945.

Similar marked increases are known to have occurred in most other municipalities utilizing water from ground sources. The remaining 156 municipalities in Texas dependent upon public water supplies, including several of the larger metropolitan areas in the State, secured all or a major part of their supplies of water from surface sources. The amount of water removed from this source for municipal use is not known; however, the Texas Board of Water Engineers has issued permits for the appropriation of 6,942,000 acre feet per year or the equivalent of 6,197,000,000 gallons per day for combined municipal and industrial uses. While it is unlikely that the entire amount of water for which appropriations have been approved is removed from streams in any one year, it is known that a very great volume is secured from this source.

Industrial users also have increased their use of water substantially in recent years. The extent to which industry draws upon water resources is indicated by the amount of water consumed in certain plants established in the area in recent years. A paper mill in the Houston area requires approximately 20,000,000 gallons of water daily, and a nylon plant near Orange needs 30,000,000 gallons of water a day. An iron smelter in east Texas uses about 17,000,000 gallons, and if a proposed steel mill is placed in operation in conjunction with the smelter, the requirements will be raised to 70,000,000 gallons per day. One process of synthetic rubber production requires 85,000 gallons of water per ton of rubber, and one plant in the Texas Panhandle alone uses 10,000,000 gallons a day. It is estimated that 3,500 gallons of water are required to process 100 cases of green beans, 16,000 gallons for 100 cases of spinach, and 1,250 gallons in manufacturing one keg of beer. The production of one gallon of aviation gasoline requires 25 gallons of condensing water, while a single airplane factory in Texas requires 20,000,000 gallons of water each day for cooling purposes alone. Between 1934 and 1945, industrial plants in Texas which secured supplies of water from ground sources doubled their consumption and are estimated to have withdrawn approximately 289,000,000 gallons a day from ground water sources in the latter year. The amount of surface water used in industrial plants is not known, but a similar increase in consumption is believed to have occurred during the same period.

Operators of irrigated farms—the third most important group of consumers of water—secure supplies from both ground and surface sources. Approximately 1,600,000 acres or about two-thirds of the total irrigated land in Texas is watered from surface streams, while the remaining one-third is irrigated with water from ground supplies. There are several distinct areas in the State where irrigation farming is practiced extensively. The Rio Grande and its tributaries, including the Pecos, are the most important sources of irrigation water in the Southwest and supply several irrigation districts. Permits have been issued for the appropriation in Texas alone of over 5,000,000 acre feet of water from this river system each year, and between 750,000 and 1,000,000 acres of land are watered from the system. Between 500,000 and 600,000 acres of land in the Lower Rio Grande Valley are irrigated from this source, as well as a large acreage in the Laredo-Eagle Pass-Del Rio area. A portion of the irrigated farms in the Pecos-Fort Stockton section and in El Paso and Hudspeth Counties in Texas, as well as numerous farms with a very large acreage in New Mexico, secure irrigation water from the Rio Grande system. In the rice belt of the coastal area of Texas, approximately 475,000 acres of rice were irrigated in 1947. Of this total, approximately 420,000 acres were irrigated from surface streams, while the remainder was watered from wells in the area. The increase in the irrigated acreage in the Plains area of Texas and New Mexico in recent years is believed to have been more rapid than in any other area of comparable size in the Nation. According to the Texas Board of Water Engineers, in the High Plains portion of Texas the number of wells drawing upon these ground supplies increased from 600 in 1936 to an estimated total of 5,500 in 1946, and the irrigated acreage rose from 80,000 acres to 650,000 acres during the same period. A further increase in irrigation occurred in the area in 1947, and the irrigated acreage now is believed to total approximately 700,000. Some increase in irrigation also occurred in the Winter Garden area southwest of San Antonio, in spite of the decline in water levels and the apparent reduction in supplies in that area. In addition to these major areas, there is a small acreage of irrigated land in northern Texas watered from the Red River.

Although complete information is not available on the total use of water by each of the three major groups of consumers, it is apparent that requirements of industrial plants now equal or exceed those of any other user and that these plants already have placed a heavy drain on the flow of unregulated streams, as well as on ground water supplies. If the Southwest is to continue to attract new industries, particularly such industries as metal smelters, steel mills, airplane factories, or chemical and associated plants, which are large users of water, an enlarged supply of water suitable for use in these

industries must be provided. Moreover, further industrial development will lead to the concentration of additional workers in towns and cities, thereby increasing the volume of water required for public use and necessitating an expansion of municipal supplies.

Withdrawals of water to meet the great increases which have already occurred in requirements have not been in accordance with the principles of best utilization; some sources have been drawn upon too heavily, while others have been neglected and their supplies wasted. The removal of water from ground sources has been at such a rapid rate that a decline in water levels or artesian heads has occurred in many areas, indicating a reduction of ground water reserves. The decline in water levels has been particularly marked in the High Plains, Lufkin-Nacogdoches, and the Winter Garden areas, while the reduction in artesian pressure in the Galveston area has permitted the intrusion of salt into the supply, thereby necessitating the development of a new source. At the same time, it is estimated that over three-fourths of the surface water or runoff has been allowed to escape into the Gulf. Moreover, communities depending upon surface water have had difficulty in securing continuous supplies and in maintaining storage facilities at the constructed capacity because of the rapid silting of reservoirs. This problem of declining supplies is becoming most acute at a time when municipalities are faced with the greatest increase in demand for water.

It is vitally important that steps be taken now to restore balance between the utilization of water and its supply, for if the growth potential of the Southwest is to be realized, an increased and continuous supply of water must be assured. The region possesses a variety of resources which can form the basis for an expanding economy if they are developed. The soils of the region, although their productivity has been impaired, still can support an expansion in agricultural production if the land is utilized in accordance with its capability and its fertility is increased and conserved. The supply of labor and the reserves of petroleum and gas are adequate to meet the requirements of a considerably larger industrial plant. The utilization of these resources to support an expansion of economic activity within the Southwest so that the region will receive the maximum benefits from their development, however, is contingent upon the availability of water.

The fact that the future growth of the region may be dependent upon the size of its water resources emphasizes the importance of conserving them and of improving their utilization. The major problem in the conservation, management, and utilization of water resources may be defined as the provision of a supply of pure water adequate to assure the future growth of the region. There are, however, many distinct, though interrelated, parts of the major problem. The first group of problems is associated with the water on the land: (1) control of runoff on the land in order to check erosion and silting of surface supplies, (2) progressive depletion of ground water supplies, (3) efficient utilization of water in irrigation districts, and (4) establishment of adequate drainage facilities. The second group of problems is associated with water in streams: (1) control of floods, (2) regulation of stream flow to maintain continuous supplies, (3) prevention of pollution and improvement of the quality of water, and (4) development of hydroelectric power.

### Water Resource Problems

The problems of water conservation and control are complex and diverse. In its movement either above or below the surface, water follows natural channels or slopes extending over wide areas, and frequently several communities, states, or even nations are concerned with a single source of supply. The problems are further complicated by the multiplicity of interests found within each community and by the great diversity of physical conditions encountered in many water supply areas.

Upland farmers are interested in retarding the movement of water across the surface of their fields in order to check the rate of erosion and in retaining as large a portion as possible of the precipitation which falls on the land so as to assure a supply of stored water for drought periods. On the other hand, farmers in lowland sections may be primarily interested in preventing deposits on their land of silt and sand washed down from the hills and in the improvement of surface and internal drainage. Municipalities and industrial users are directly concerned with the provision of an adequate supply of unpolluted and good quality water, the prevention of flood damage, and the disposal of waste and unwanted water. Operators of hydroelectric plants and water transportation facilities are faced with the problems of maintaining a steady flow of water and preventing destructive silting of lakes and streams. Sportsmen and operators of commercial fisheries or recreational areas are interested in preventing the pollution of streams, which might destroy aquatic life.

In spite of the diverse and often conflicting interests, however, the problems confronting all segments of the population in a water supply area are interrelated and can best be solved if considered collectively. In order to assure that all interests will be attended, it is frequently necessary to approach these problems on a regional or even national basis, which permits compromise of the divergent interests and the coordinated conservation and development of the water resources.

**Water on the Land.** A basic consideration in determining a feasible program for the control and conservation of water resources should be the relationship of water to the land, because it is on the individual farms and ranches that the first steps in such a program should be taken. The control of surface water at its source is essential to the ultimate solution of virtually all other problems of water conservation and control. Here, effective action can be taken to retain increased proportions of precipitation in the areas where it falls, thereby reducing soil erosion and the rate of water runoff, increasing the filtration of water to underground reservoirs, and aiding in the prevention of floods, the silting of streams and reservoirs, and the deposition of soil on lowland areas. The necessity of initiating measures to achieve these desirable objectives is emphasized by the steady deterioration of soil fertility through the years and the ensuing problems. Over large areas of the region the protective cover has been stripped away, exposing the land to the beating action of rain and increasing the rate of erosion. The runoff of water into streams and rivers has been speeded up and flood damage has been intensified. Silting, which results from this erosive process, has impaired navigation, partially filled many storage reservoirs, and reduced the productivity of lowland fields on which it was deposited.

Through the establishment of a coordinated soil conservation program on individual farms, it should be possible to bring about a material improvement in existing conditions within a reasonable period and ultimately to provide for the solution of many basic problems. By increasing the absorptive capacity of the soil through the use of such conservation measures as the plowing under of green manure crops, the use of commercial fertilizers and limes, or other measures which would improve the structure and internal drainage of the soil, the rate of runoff and erosion could be reduced. Where such measures are needed, the construction of terraces or diversion ditches, contour planting, and the use of cover crops or the restoration of sod or forest cover on erosive slopes would slow the movement of water across the land. The building of farm ponds and tanks would reduce the volume of water entering streams during periods of heavy rainfall and would provide an additional supply of water for use on farms during dry periods. These measures, in addition to conserving the available supply of water and bringing about more efficient utilization, would be effective in increasing the volume of agricultural production, for by expanding the supply of moisture available to plants, crop yields would be increased and the wide variations in yields would be reduced. Moreover, such measures would act to increase the downward filtration of moisture and the replenishment of underground reservoirs. Erosion also would be reduced, thereby minimizing the problem of maintaining navigable streams and usable municipal water supplies.

It is apparent, therefore, that the improvement and conservation of the soil are closely related to the conservation and management of water supplies and that it would be difficult to formulate a satisfactory program to provide a solution for either of these problems if the other were disregarded. Effective methods of conserving soil and water have been developed, and the public, including both farmers and business leaders, is aware of the importance of establishing these methods on the land. Great progress has been made in the organization of individual farmers into soil conservation districts and in supplying them with the technical advice required to carry out a coordinated conservative program. Conservation measures have been established on a considerable portion of the land in farms, and the effectiveness of these methods in checking erosion and runoff, in improving the structure of the soil, in increasing the fertility of the land, and in improving the utilization of water has been demonstrated clearly. The establishment of conservation measures on individual farms, however, is far from complete, and the need for expanding this program to cover the entire region is urgent. Moreover, if these two basic resources—soil and water—are to be conserved and utilized most efficiently, it may be necessary to expand the soil conservation program to include additional measures designed to aid primarily in the control of water. If the soil conservation program in each district were coordinated more completely with flood control, drainage, and water improvement work, the progress of each program would be accelerated. While the job of conserving and improving the utilization of soil and water must be started on individual farms, it is done most effectively when attacked on a watershed

basis. The close cooperation of all groups living within a single drainage area, therefore, will be required if this task is to be completely successful.

Closely related to the problem of controlling surface water and conserving the soil is a second serious problem which confronts all portions of the region and which constitutes a threat to the future of many communities—that of progressive depletion or deterioration of ground water supplies. The effects of wasteful exploitation of these resources in many areas have been intensified by the reduction in the recharge of underground reservoirs, due to the removal of the native cover and the deterioration of the soil structure. As a result, water levels and artesian pressures have declined and supplies have become contaminated through the intrusion of salt. Although prolonged periods of below normal rainfall have contributed to the decline of ground water supplies in many areas, the resulting deficiency in recharge could have been offset partially during years of above average precipitation if the downward filtration of surface moisture had been increased. As indicated above, a further extension of the soil conservation program would aid materially in increasing the absorptive capacity of the soil and in reducing the rate of runoff so that the downward movement of water to underground reservoirs could be expanded. Even if the rate of recharge of ground supplies is increased through the application of such measures, it will still be necessary in many areas to limit the withdrawal of ground water if these supplies are to be maintained permanently and their value to the community is to continue unimpaired. Although it appears unlikely that the supply of ground water will be exhausted completely in any area in the near future, continued declines in the water level or artesian pressure may require the boring of progressively deeper wells, which eventually may raise the cost of water withdrawal to prohibitive levels. In other areas, pollution of underground supplies may necessitate the abandonment of present wells and the development of other sources of supply. If these problems are not solved, underground sources may be depleted seriously and the future prosperity of communities depending on these supplies may be jeopardized.

The large and expanding area of farm lands under irrigation has created some serious problems with respect to water utilization and conservation. In districts where irrigation is already established, problems have arisen in regard to the efficient use of water. In some cases, a portion of the inadequate supply is often wasted either through loss from the irrigation system itself or through the unwise use of water on the land; while in other instances, the productive capacity of the land has been reduced by raising the water level or increasing the salt concentration in the soil. Construction of improved irrigation systems would reduce the loss of water through seepage and evaporation, and the adoption of improved irrigation practices already known will direct more of the water to plants and reduce losses in the fields. To solve this problem completely, however, additional research is needed to discover the water requirements of various crops and the yields derived with varying applications of water. Additional careful study also is needed of the mineral content of water used for irrigation and the effect of these minerals on growing crops and the productive capacity of the land. The development of this information and its widespread dissemination will aid farmers in determining the most profitable and efficient applications of water.

The studies would be beneficial also to some irrigation areas which have expanded beyond the capacity of their present water supply and have experienced recurring periods of water shortage. Overexpansion, of course, should be avoided in all cases, but it is possible that the full and efficient use of the potential supply of water might overcome the existing shortage and even provide for a considerable increase in the irrigated acreage. The benefits to be derived in the Southwest from the expansion of the acreage in existing irrigation areas are sufficiently great to warrant extensive investigation of these possibilities, and studies directed toward that end might well be expanded and accelerated.

Another aspect of water utilization is the possibility of extending irrigation to farms in the humid or subhumid areas. Even though total precipitation in these areas may be abundant, it is not always received at the most appropriate time, and the application of irrigation water to certain crops at critical periods during the growing season has proved beneficial. It has also proved very helpful in offsetting the effects of periods of drought which occur frequently in all areas. There is a possibility, therefore, that supplementary irrigation might be practiced profitably in the eastern portion of the Southwest where adequate supplies of water could be developed. In that event, the more intensive crop system established with supplementary irrigation might increase substantially the productive capacity of the area.

Some areas in the region are confronted with an entirely different problem—that of removing excess water from the land. Irrigated areas must provide adequate internal drainage to prevent water-logging of the soil or, in some areas, the accumulation of undesirable and injurious minerals. Surface drainage is required in all lowland areas in order to prevent damage to growing crops or delay in field operations due to the collection on the land of excess rainfall or backwater. Properly constructed open drains are generally effective in the removal of surface water, but to assure good internal drainage it is frequently necessary to supplement open drains with tile drainage systems. The cost of installing a fully effective drainage system is usually high, but the most pressing need for drainage exists on the more productive land in alluvial valleys or irrigated areas where the increase in returns will usually justify large capital expenditures.

**Water in Streams.** Falling water levels in underground reservoirs, combined with the tremendous expansion in the requirements of all water consumers, bring to the forefront the necessity of increasing the downward filtration of water to underground pools and of controlling withdrawals of water from ground supplies but are also indicative of the extent to which the region must depend upon surface streams to meet future increases in requirements for water. Under these circumstances, consideration must be given to the problems of management and utilization of surface streams, such as control of destructive floods, stabilization of stream flow, reduction or elimination of pollution, and, where feasible, development of hydroelectric power as a means of distributing costs and supplementing the existing power resources of the region.

A major problem is the recurrence of destructive floods in the Southwest, resulting primarily from the concentration of rainfall within relatively short periods. These floods continue to cause tremendous loss of life and property each year even though millions of dollars have been spent in efforts to control them. Major floods in the Southwest are produced by tropical or semitropical storms which enter the southeastern portion of the area from the Gulf of Mexico or across the northeast corner of the Republic of Mexico. In the past, a few floods have been caused by tropical cyclones which have moved in from the Pacific Ocean across either Mexico or the Rocky Mountains, and in the western part of the region floods sometimes result from summer thunderstorms, which may or may not be parts of more general storms.

In that portion of the region lying east of the ninety-ninth meridian drained by the Mississippi, floods are a serious problem each year, but considerable progress has been made in their control, largely through the construction of levees supplemented on some streams by storage reservoirs. In the western gulf drainage area, which includes the Rio Grande and all basins north and east to the Mississippi, destructive floods occur in the lower reaches of the major streams on an average of once in every four or five years. Reservoirs in the upper portions of these streams have reduced flood flow somewhat, but these facilities have little or no effect on the flow resulting from heavy storms below the reservoirs, particularly in the coastal section. In the Colorado River drainage area in the western part of the region, the construction of Boulder, Roosevelt, and Coolidge Reservoirs is said to have eliminated the danger of floods in the lower portions of the river, even though a few small areas above the reservoirs still are subject to flooding.

Flood control works in the Southwest are of three general types: storage reservoirs to impound flood waters for later release, channel improvements to increase capacity or facilitate flow, and levees to protect bottomlands and to hold the streams within relatively narrow limits. Storage reservoirs generally are believed to provide the most satisfactory method of control if the terrain permits their construction and if the impounded waters can be put to multiple uses, thereby reducing their costs. Moreover, their ultimate effectiveness depends on the reduction of silting through soil conservation measures. The Boulder Reservoir on the Colorado River generally is considered to be the most successful example of the use of storage reservoirs to control floods. Another important facility is Elephant Butte Reservoir in New Mexico, which has the dual purpose of controlling floods and of providing irrigation water. Since the water stored in these reservoirs is used for more than one purpose, the cost of flood control is reduced accordingly. Channel improvement alone generally does not afford adequate protection from floods, but this development has been a valuable and in some cases necessary supplement to other flood control measures. The best example of the control of floods through the use of levees is found along the lower stretches of the Mississippi, where an extensive levee system constructed under the auspices of the Federal Government has proved completely successful thus far in protecting the area from floods.

These three methods of flood control have been very beneficial in minimizing flood flows after the water has reached the streams and rivers. Their effectiveness, however, has been reduced by other factors. Because of the increased runoff resulting from the lack or quality of conservation practices on farms and ranches, beds of some streams have been raised and filled by deposits of soil and other erosion debris to such an extent that the channels are frequently unable to carry even normal runoff and storage reservoirs have shown a tendency to silt up rapidly. Much can be done to increase the effectiveness of present flood control methods if and when the comprehensive soil conservation practices outlined earlier in this article are put into effect on farms and ranches over the whole region. Supplementary practices, such as construction of numerous detention reservoirs, gully control structures, flood water diversions, revegetation of critical flood and sediment areas, adoption of roadside erosion control measures, and stream channel improvements, would aid in reducing the amount of runoff or facilitate the movement of water in streams.

A second serious problem arising out of the irregularity of stream flow is the provision of continuous supplies of water to fill the needs of many municipalities, industries, and irrigation farmers. Frequently water users depending upon streams for their supplies find that the flow of those streams drops to such low levels during extended periods of drought that it is inadequate to meet their normal requirements or that the quality of the water deteriorates to the point where it is unfit for many uses. This problem is of particular importance now that an increasing number of users are being forced to develop surface sources of water, due to the depletion of ground supplies and the tremendous increase in requirements. Since a considerable portion of the surface water of the Southwest is allowed to escape into the Gulf each year, it appears probable that the requirements of most communities could be filled if the flood flow of streams were stored for later use. Although many storage reservoirs have been constructed in the region, it is becoming apparent that many more may be needed if the stream flow is to be regulated and an adequate supply of water assured. Successful control of stream flow and maintenance of storage reservoirs will depend, in part, however, upon slowing the rate of runoff and increasing the infiltration of water by the application of soil conservation measures.

The irregularity of water flow also affects the problem of stream pollution. The discharge into streams of sewage from cities or waste from industrial plants and oil fields generally does not pose a serious problem in the Southwest during periods when the flow of streams is large. When the flow drops during dry periods, however, the concentration of foreign matter in the streams may become serious and in some areas water may become so contaminated that it is unfit for use. Regulation of stream flow to prevent a sharp reduction or disappearance of water in streams during certain periods would aid in the solution of this problem. There is need, however, in some portions of the region for further treatment of waste before it is released into the streams. Most urban centers in the Southwest already treat sewage before discharging it into streams, but in some cases the process is not carried far enough to prevent some pollution of the surface supply. The need for more careful treatment of waste both from cities and industries will increase in the Southwest as urban centers increase in size and as industrial development continues.

The development of hydroelectric power in the Southwest has posed a variety of questions which are as yet unanswered. Additional power will be required in this region to meet the needs of an expanded population and increased industrial activity. It has not been determined, however, whether an extensive expansion of hydroelectric facilities is feasible or whether additional power requirements can be met more economically by other means. Extensive power facilities already have been constructed in the Colorado Basin in the far western part of the region, but in the remaining portion the development of power facilities has been limited either by scant and irregular runoff or by the flat terrain. In Texas, only 9 hydroelectric power facilities have been constructed. Denison Reservoir on the Red River, constructed for the purposes of flood control and the development of power, is the largest of these facilities. A series of reservoirs have been constructed along the Colorado River which include facilities for the development of power. Included among these are: Lake Austin and Lake Travis at Austin and Buchanan and Inks Reservoirs at Burnet. Power facilities have been installed at the Possum Kingdom Dam on the Brazos River at Graford. In addition, relatively small facilities have been constructed on the Guadalupe River at Seguin and on the Rio Grande at Orla and at Del Rio. The larger facilities constructed in Texas have been multiple purpose reservoirs, and the construction of some few additional facilities of this type may be feasible in the near future. If facilities can be combined in this manner, many projects could be undertaken which otherwise might not be warranted.

### Conclusion

A study of the water resources in the Southwest and their utilization reveals disturbing and, in fact, dangerous trends. Ground water resources in areas where they appeared inexhaustible have been used with reckless abandon as population has increased, new industries with large water requirements have been established, and farmers have turned to irrigation as a means of increasing crop production. During recent years of exceptionally heavy water consumption, water levels in underground reservoirs have fallen lower and lower, indicating that downward infiltration of water from the surface has been insufficient to replace the large withdrawals. This condition apparently is due in part to heavy withdrawals and in part to the destructive soil erosion which has reduced the absorptive capacity of the soil and increased the runoff. Numerous communities without adequate ground water supplies turned to the construction of surface reservoirs. These reservoirs have contributed greatly to the water supplies of the region, but with the passage of years it has been discovered that their constructed capacity has been reduced significantly by rapid silting. Associated with these developments have been: (1) the intensification of floods; (2) the silting of streams and channels resulting from improper land use, increased water runoff, and soil erosion; and (3) the increased pollution of streams and certain underground reservoirs. A continuation of these trends which reflect waste and misuse of the region's water resources may mean that the Southwest will soon reach the limits of its expansion and ultimately may even face a reduction of its industrial activity and farm irrigation.

On the other hand, study of the water resources of the Southwest need not lead only to a discouraging conclusion. Great potentialities for the region are inherent in its water resources, provided a long-term program of development, conservation, and proper utilization of water resources is effected promptly. Most areas of the region probably receive sufficient rainfall to recharge underground reservoirs or at least to check the rate of decline in water levels and to assure unusually large quantities of surface water supplies, provided maximum quantities of water are stored and properly utilized. Measures which would contribute to the attainment of these objectives have been discussed in this article. It should be emphasized again, however, that the adoption and ultimate successful completion of a well-rounded soil conservation program applicable to the entire region is basic to a solution of the water resource problem. Such a program would provide the foundation upon which to construct a comprehensive program for the development of water resources and, at the same time, would greatly increase the agricultural potentialities of the region.

Much of the foundation work for the development of a coordinated water conservation program has been completed. The United States Geological Survey and the Texas State Board of Water Engineers have assembled extensive information on the flow of all major streams in the region, on the extent and location of the most important ground water supplies, and on the quality of water obtained from many of these sources. The Corps of Engineers, United States Army, has compiled a large volume of basic information which would be invaluable in the development of a water conservation program. Similarly, the studies made by the Bureau of Reclamation, Department of the Interior, will yield valuable information for further work in conservation, particularly in regard to irrigation water.

The Soil Conservation Service and the various soil conservation districts working directly with farmers on the land have developed effective measures to reduce runoff and erosion and to increase downward filtration of water to underground reservoirs. Moreover, the results obtained from the establishment of these practices on farms in many areas have demonstrated their value in conserving and improving the soil, in reducing the pollution of streams with silt, and in moderating the irregularities of water flow. The numerous surface reservoirs either under construction or projected foreshadow large additions to water supplies and highlight the urgency for extending soil conservation practices. The steps taken thus far in dealing with the water resource problems of the region indicate that progress is being made, but an objective appraisal also indicates that these steps represent only segments of the broad problem of assuring adequate water supplies for the Southwest.

The seriousness of the water problem and the importance of water to the further growth of the Southwest emphasize the need for the formulation and effectuation of a comprehensive program for the conservation, management, and utilization of the region's water resources. There is perhaps no more important basic problem confronting the people of this region today than the problem of its water resources. The most effective results toward the solution of this problem can be obtained only through the close cooperation and coordinated effort of all interested groups working in harmony to achieve the common objective.



# Review of Business, Industrial, Agricultural, and Financial Conditions

## DISTRICT SUMMARY

Prospective production of most principal crops in the Eleventh Federal Reserve District is lower than in 1947, due to acreage reductions and the smaller indicated per acre yields. While production estimates are not yet available for cotton and grain sorghums, the larger acreages planted to these crops suggest the possibility of an increase in production. Although most row crops and livestock ranges suffered from the dry weather and hot winds during June, considerable improvement has occurred since the widespread rains in late June and early July. Under the stimulus of better grazing conditions, livestock generally are gaining in weight.

The dollar value of department store sales in the District, which had been maintained at approximately the same level during the preceding three months, declined 12 percent from May to June. This decline, although larger than is usual at this season, was smaller than that which occurred at the same season in 1947. In consequence, the increase in sales over the corresponding months last year widened from 6 percent in May to 17 percent in June.

Daily average production of crude oil in the District and the Nation reached new peaks in June at levels substantially higher than a year earlier. Refinery operations were also at peak levels, and while the strong demand for petroleum products continued, stocks of most products increased further. The value of construction contracts awarded during June declined sharply from the postwar peak reached in May this year and was moderately below the average of awards for the first four months of the year. The total for June, however, was 24 percent higher than in the corresponding month last year. According to the Texas Employment Commission, nonagricultural employment in Texas rose in May to a new peak which was 5 percent above the level of May 1947. Further increases in employment were expected in June and July.

The deposits of weekly reporting member banks increased further during the four weeks ended July 14. The loans of these banks increased moderately during the period, counterbalancing the decline that occurred during the preceding five-week period. Their investment holdings declined slightly, after having shown an upward trend from mid-April to mid-June.

## BUSINESS

Consumer buying at department stores in the District declined by more than the usual seasonal amount from May to June but exceeded that in June last year by a substantial margin. The 12 percent decline in the dollar value of department store sales between May and June was much smaller than that which occurred in the same period last year, with the result that the year-to-year gain amounted to 17 percent in June as compared to only 6 percent in May. One factor contributing to the better showing this year, however, was the fact that there was one more business day in the month than in June last year. The adjusted index of department store sales, which makes allowance for seasonal factors and the varying number of business days, declined in June to 406 percent of the 1935-39 average from 418 percent in May but was sharply higher than the 362 percent registered for June of last year. Despite the decline during the past two months, the adjusted index for June has been exceeded in only three months—April and May of this year and November of last year. Data received from weekly reporting department stores indicate that sales during the first half of

July were about 12 percent higher than those in the corresponding period last year. Factors tending to stimulate sales have been the widespread clearance sales of summer merchandise and the frequent special promotional sales.

The dollar value of inventories at department stores, which turned downward in May for the first time this year, decreased further by 5 percent in June. However, inventories at the end of June were 29 percent larger than a year earlier. The trend of outstanding orders has continued to follow the same pattern as in 1947. After falling sharply from January to May, outstanding orders rose 55 percent in June and at the end of the month were 5 percent larger than on the corresponding date last year.

The rate of collections on accounts receivable at department stores declined by a smaller amount than is usual from May to June. The ratio of collections during June to regular accounts outstanding at the first of the month amounted to 52 percent as compared with 54 percent in May, while the ratio of collections to installment accounts declined to 18 percent in June from 19 percent in May.

## WHOLESALE AND RETAIL TRADE STATISTICS

	Number of reporting firms	Percentage change in			Stocks †	
		June 1948 from June 1947	May 1948	6 mo. 1948 comp. with 6 mo. 1947	June 1948 from June 1947	May 1948
<b>Retail trade:</b>						
<b>Department stores:</b>						
Total 11th Dist. ....	48	11	-16	12	29	-5
Corpus Christi .....	4	12	-11	†	1	-5
Dallas .....	7	6	-17	6	19	-7
Fort Worth .....	4	16	-12	21	26	-5
Houston .....	7	33	-7	25	59	-5
San Antonio .....	5	18	-13	11	23	-1
Shreveport, La. ....	3	24	-1	20	..	..
Other cities .....	18	13	-2	7	29	-3
<b>Furniture stores:</b>						
Total 11th Dist. ....	39	16	†	..	1	-3
Dallas .....	4	35	-8	..	-8	†
Houston .....	4	13	-3	..	..	..
Port Arthur .....	4	12	3	..	20	2
San Antonio .....	4	16	17	..	..	..
<b>Wholesale trade:*</b>						
Surgical, medical equip't, supplies..						
Industrial supplies..	3	13	-2	..	26	4
Drugs .....	3	49	17	..	1	5
Groceries .....	6	14	-1	3	-1	..
Hardware .....	33	8	†	7	11	-11
Tobacco & products..	7	6	1	6	21	-2
Dry goods .....	6	-†	2	-†	-12	No Chg.
	4	-2	3	†	†	3

\*Compiled by United States Bureau of Census. (Wholesale trade figures preliminary.)

†Stocks at end of month.

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

## INDEXES OF DEPARTMENT STORE SALES AND STOCKS

Daily average sales—(1935-39=100)

	Unadjusted*				Adjusted			
	June 1948	May 1948	April 1948	June 1947	June 1948	May 1948	April 1948	June 1947
11th District.	345	393	399	308r	406	418	448	362r
Dallas .....	293	354	363	288r	358	377	395	352
Houston .....	420	453	453	329	483	472	472	378

  

	Unadjusted*				Adjusted			
	June 1948	May 1948	April 1948	June 1947	June 1948	May 1948	April 1948	June 1947
11th District.	386	396	409	298	397	417	422	308

\*Unadjusted for seasonal variation.

r—Revised.

The total volume of retail sales at reporting furniture stores in the District was well sustained during June, showing only a fractional increase from May sales and a 16 percent increase over those in June 1947. Cash sales reflected a further decline of 8 percent during June from those in May, while credit sales increased 2 percent during the same period. Although the ratio of credit sales to total sales in June showed only a slight increase from the May level, it has reflected a steady upward trend over

the past year. As compared with June last year, the decline of 25 percent in cash sales and the increase of 23 percent in credit sales have resulted in a rise in the ratio of credit sales to total sales to 89 percent this June from almost 83 percent last June. The increase in credit sales has been accompanied by an even larger gain in accounts receivable, the total outstanding at the end of June being 4 percent larger than a month earlier and 56 percent greater than a year ago. Collections, although 2 percent smaller in June than in May, have also shown an upward trend over the past year and in June were 12 percent larger than in that month of 1947. The much smaller increase in collections than in accounts receivable is indicative of the general slowing down in the trend of customer payments on accounts outstanding, as well as some liberalization of terms on installment sales.

The total volume of inventories at reporting furniture stores, which had increased moderately during the first four months of the year, declined somewhat during the past two months and at the end of June was only about 1 percent larger than a year ago.

### The Upward Trend in Business Failures

After the outbreak of World War II, the number of commercial failures in the Eleventh District, in common with the trend in the United States, declined sharply. In 1945, the last war year, there were only 5 defaults in the District as compared with 273 failures in 1941. The virtual disappearance of failures reflected the usual wartime conditions of rising prices and of a strong demand for all classes of merchandise, which were conducive to profitable operation of business establishments. In the three postwar years these same factors have continued to react favorably upon the maintenance of business profits, but the rapid increase in the number of business establishments and the increase in competition have made it difficult for some concerns to show a satisfactory margin of profits. In consequence, the number of business failures has shown an upward trend. From the accompanying table it will be noted that there were 62 failures in 1947 as compared with 16 in 1946 and that there were 55 failures in the first half of 1948 as compared with 22 in the comparable period of 1947. While the current rate of failures is still well below the prewar rate, the upward trend is indicative of the increasing stresses and strains in business operation.

THE NUMBER AND LIABILITIES OF COMMERCIAL FAILURES  
Eleventh Federal Reserve District

Month	Number of commercial failures				Total liabilities (In thousands of dollars)			
	1945	1946	1947	1948	1945	1946	1947	1948
January.....	1	1	2	10	\$ 10	\$ 5	\$2,509	\$198
February.....	..	..	3	4	..	..	120	101
March.....	1	2	5	10	..	150	309	525
April.....	..	2	5	8	..	455	892	155
May.....	..	..	3	8	..	..	38	324
June.....	..	..	4	15	..	..	269	512
July.....	..	2	7	..	..	140	440	..
August.....	..	1	7	..	..	14	202	..
September.....	..	2	7	..	..	164	84	..
October.....	1	1	8	..	2	20	102	..
November.....	..	3	3	..	..	167	42	..
December.....	2	2	8	..	83	22	310	..
Total.....	5	16	62	..	\$ 99	\$1,146	\$5,317	..

### AGRICULTURE

The total acreage of all crops for harvest in Texas during 1948 is estimated by the United States Department of Agriculture at about 1 percent below that harvested last year. Wheat acreage for harvest is down about 1,600,000 acres from 1947 due principally to the fall and winter drought, which reduced the acreage seeded and caused substantial acreage abandonment. The oat acreage is down almost 600,000 acres largely because of the damage resulting from the March freeze. Since much of the acreage intended for wheat and oats was planted in cotton and grain sorghums, cotton acreage is about 775,000 acres larger

than last year and sorghum acreage is up about 1,000,000 acres. Increases in acreages for harvest are indicated also for barley, rye, flax, and rice, while decreases are reported for corn, sweet potatoes, peanuts, and all hay.

The droughty conditions which prevailed over the major portion of the Eleventh District during most of June caused extensive damage to row crops in some areas but enabled farmers to make rapid progress with field work and harvesting operations. Since the widespread rains around the first of July, which broke the drought in most areas, crops are making good growth. Grazing conditions, also, are showing marked improvement in most range areas, and livestock are gaining in weight but their condition is still below average for this season.

The United States Department of Agriculture estimated the cotton acreage in cultivation in the Nation on July 1 this year at 23,653,000 acres, which is 2,153,000 acres or 10 percent above that in 1947 and about 2 percent above the 10-year (1937-46) average. All important states, except Oklahoma, have increased acreages over last year, with the greatest percentage increases being in the extreme western states, where cotton is grown under irrigation. The Texas acreage, which constitutes about 39 percent of the Nation's total this year, accounted for about one-third of the increase in the national figure. The State total, estimated at 9,200,000 acres, is 9 percent greater than last year and about 10 percent above the 10-year average and represents the third successive year of increase since the low level reached in 1945. Plantings in all major cotton growing areas of Texas have been expanded. The High Plains and Edwards Plateau counties accounted for the largest percentage increases, although very significant increases occurred in the Blacklands, east Texas, and Cross Timbers counties and in the Lower Rio Grande Valley. The dry weather during June enabled farmers generally to bring the crop into a good state of cultivation, was conducive to the development of a good taproot on plants, and assisted in the control of insect infestation. The rains early in July were very beneficial to cotton, giving the plants the moisture needed for rapid growth and fruiting. Recent reports, however, indicate that insect activity is increasing in some areas.

TEXAS PLANTED COTTON ACRES BY CROP REPORTING DISTRICTS  
(In thousands)

Crop reporting districts	1945	1946	1947	1948 Indicated	1948 as percent of 1947
1-N.....	54	79	179	260	145
1-S.....	418	690	2,046	2,300	112
2.....	1,326	1,331	1,615	1,650	102
3.....	85	73	63	75	119
4.....	2,147	2,243	2,332	2,550	109
5.....	611	502	551	625	113
6.....	78	79	91	100	110
7.....	99	78	114	150	132
8.....	658	625	684	700	102
9.....	269	264	284	290	102
10.....	284	319	467	500	107
State.....	6,029	6,283	8,426	9,200	109

The estimated 2,798,000 acres of corn for harvest in Texas is 5 percent below last year's acreage and is the lowest acreage since 1925. The initial production forecast of 43,369,000 bushels compares with 48,592,000 bushels last year and a 10-year average of 70,422,000 bushels. The rain came too late to benefit materially much of the early corn in central and southern counties of the State, but the late crop has shown rapid improvement and yields are expected to exceed earlier estimates. That farmers in the District are shifting rapidly to use of hybrid seed for corn planting is indicated by a recent report of the United States Department of Agriculture, which shows that this year hybrid seed were used to plant 50 percent of the acreage in Texas, 56 percent in Oklahoma, and 18 percent in Louisiana. These percentages are more than double those in 1946.

Harvesting of wheat in Texas is virtually completed, with yields exceeding earlier expectations. The generally favorable weather conditions, ample supplies of labor and equipment, and generally adequate transportation and storage facilities accelerated the harvesting and movement of the crop. The July 1 estimate of 57,020,000 bushels, while about 2,000,000 bushels above the estimate a month earlier, is less than half the record crop of 124,270,000 bushels in 1947. The indicated per acre yield of 10 bushels this year compares with 17 bushels last year and a 10-year average of 11.6 bushels.

CROP PRODUCTION—(In thousands of bushels)

	Texas		States in Eleventh District*			
	Average 1937-46	1947	Estimated July 1, 1948	Average 1937-46	1947	Estimated July 1, 1948
Winter wheat.....	45,686	124,270	57,020	113,001†	238,712‡	159,358‡
Corn.....	70,422	48,592	43,369	123,899	87,664	89,395
Oats.....	34,370	31,248	14,734	65,166	69,006	40,164
Barley.....	4,049	2,520	2,370	12,120‡	9,230‡	10,887‡
Tame hay†.....	1,193	1,246	1,217	3,621	4,044	3,953
Potatoes, Irish.....	4,311	4,536	4,400	9,978	9,260	8,490
Potatoes, sweet.....	5,121	4,675	3,854	14,366Δ	12,565Δ	10,454Δ
Rice.....	15,588	23,700	24,096	36,991Θ	45,155Θ	47,221Θ

\*Figures are combined totals for the five states lying wholly or partly in the Eleventh Federal Reserve District: Texas, Arizona, Louisiana, New Mexico, and Oklahoma. †In thousands of tons. ‡Arizona, New Mexico, Oklahoma, and Texas. ΔLouisiana, Oklahoma, and Texas. ΘLouisiana and Texas.

SOURCE: United States Department of Agriculture.

Grain sorghums for harvest in Texas are estimated at 6,005,000 acres or about 18 percent above the acreage harvested last year. Grain sorghum harvesting is active in southern counties of Texas and is getting under way in the central part of the State. The crop in the High Plains and Low Rolling Plains is in good condition, although limited planting is being continued and much of the acreage is later than usual.

CROP ACREAGE—(In thousands)

	Texas		States in Eleventh District*			
	Harvested		For harvest	Harvested		For harvest
	Average 1937-46	1947	1948	Average 1937-46	1947	1948
Cotton†.....	8,357	8,426	9,200	11,444	10,802	11,705
Corn.....	4,392	2,945	2,798	7,642	5,350	5,226
Wheat.....	3,952	7,310	5,702	9,025‡	14,744‡	12,873‡
Oats.....	1,456	1,488	893	2,955	3,078	2,173
Barley.....	237	144	158	667‡	404‡	474‡
Rye.....	16	35	60	110Δ	88Δ	103Δ
Rice.....	336	474	502	882Θ	1,087Θ	1,127Θ
Flax.....	36	91	160	70□	115□	198□
Tame hay.....	1,244	1,481	1,352	2,831	3,385	3,187
Wild hay.....	186	200	200	616‡	670‡	646‡
Potatoes, Irish.....	53	42	44	132	98	92
Potatoes, sweet.....	61	55	47	173Θ	152Θ	135Θ
All sorghum.....	6,712	5,629	6,626	9,143	7,317	8,440
Peanuts (alone).....	635	907	816	834*	1,272*	1,145*
Cowpeas (alone).....	480	186	167	707Θ	286Θ	272Θ

\*Figures are combined totals for the five states lying wholly or partly in the Eleventh Federal Reserve District: Texas, Arizona, Louisiana, New Mexico, and Oklahoma. †Increase in cultivation July 1. ‡Arizona, New Mexico, Oklahoma, and Texas. ΔNew Mexico, Oklahoma, and Texas. ΘLouisiana and Texas. □Arizona, Oklahoma, and Texas. \*Louisiana, Oklahoma, and Texas. \*Louisiana, Oklahoma, Texas, and New Mexico.

SOURCE: United States Department of Agriculture.

Estimates of this year's acreage and production of other important crops, such as oats, barley, rice, hay, and Irish and sweet potatoes, are shown in the accompanying tables. The oat crop in Texas this year, estimated at 14,734,000 bushels, is less than one-half the 1947 harvest and the 10-year average production. The Texas rice crop of more than 24,000,000 bushels, an all-time high, results from an increased acreage with better-than-average yields. Hay production in the State is estimated to be about average, although yields are below average. Irish potato production will be about average, with very good yields reported. Because of smaller acreage and below average yields, this year's sweet potato production is expected to be considerably below normal.

Conditions were improved during the second half of June and early July over most of the commercial truck crop areas of the District, and local showers were beneficial to late cantaloupes,

potatoes, tomatoes, and watermelon. However, heavy rains in part of the Rio Grande watershed caused floods from around Del Rio down to below Laredo, damaging fall-crop seed beds being prepared in that area but causing no serious damage in the Lower Valley. These rains replenished supplies of badly needed irrigation water. Transplanting of peppers and tomatoes in the Winter Garden area and of tomatoes in the Eagle Pass district is progressing satisfactorily, and preparation of soil for fall vegetables is active in the Lower Rio Grande Valley. Harvesting of potatoes is under way in practically all areas of the Panhandle district, with good yields and quality reported.

The Texas peach crop of 961,000 bushels is 43 percent below the average-sized crop of 1,696,000 bushels harvested last year, while the pear production of 226,000 bushels is only about half of last year's crop. The condition of Texas citrus declined further during most of June because of continued dry weather and shortages of irrigation water but is showing improvement since the replenishment of water supplies.

Reflecting the effects of the spring drought over the range areas of the District, the condition of ranges had dropped to an unusually low level on July 1, but since the rains a noticeable improvement has occurred in virtually all areas except in the Trans-Pecos region of Texas, where droughty conditions still prevail. Ranges in southern New Mexico and Arizona are in fair to good condition, although additional moisture is needed.

Livestock were generally in poor to fair condition on July 1, due principally to the shortages of pastures and range grasses, but with the recent improvement in grazing conditions they are showing noticeable gains in weight.

The receipts of livestock into the Fort Worth and San Antonio markets in June were sustained at the May level, due largely to forced marketing of sheep and cattle because of the poor range conditions, but were 11 percent below those in the corresponding month last year.

LIVESTOCK RECEIPTS—(Number)

Class	Fort Worth			San Antonio		
	June 1948	June 1947	May 1948	June 1948	June 1947	May 1948
Cattle.....	89,602	112,923	83,269	38,179	42,408	33,724
Calves.....	28,797	33,840	22,637	27,488	21,983	21,225
Hogs.....	57,766	38,188	112,227	6,365	5,475	8,709
Sheep.....	321,576	401,016	290,762	79,294	72,834	72,154

COMPARATIVE TOP LIVESTOCK PRICES  
(Dollars per hundredweight)

Class	Fort Worth			San Antonio		
	June 1948	June 1947	May 1948	June 1948	June 1947	May 1948
Beef steers.....	\$33.00	\$25.50	\$32.00	\$31.75	\$24.00	\$30.00
Stocker steers.....	28.50	22.50	28.00	.....	.....	.....
Heifers and yearlings.....	35.00	25.50	32.50	30.00	22.50	30.00
Butcher cows.....	24.50	19.50	25.25	25.00	18.00	24.00
Calves.....	31.50	25.00	31.00	30.00	23.50	30.15
Hogs.....	28.00	25.00	25.00	27.50	24.75	24.50
Lambs.....	30.00	25.75	29.00	26.50	21.50	26.50

The mid-June report of the United States Department of Agriculture indicated that prices received by Texas farmers made sharp but diverse changes during the month. Prices received for most meat animals, truck crops, poultry, and dairy products advanced during the month. Wool prices advanced sharply to a mid-June average of 60 cents per pound. On the other hand, prices received for potatoes, cotton, hay, and most grains declined.

Reports from spot commodity markets indicate that from June 15 to mid-July, prices received by farmers for livestock made substantial gains, while prices received for cotton and grains declined sharply. Cotton was down within about 5 cents per pound of the interim loan rate. Wheat prices declined within striking distance of the support level, while other grains sold appreciably above their support prices.

## FINANCE

During the four-week period from June 16 through July 14, total loans of selected member banks in leading cities of the Eleventh Federal Reserve District increased by \$14,645,000, while total investments declined by \$3,798,000. Total deposits of these banks, which include the largest banks in the District, rose by \$43,940,000 as all major categories of deposits reflected increases.

The weekly trend of commercial, industrial, and agricultural loans of these selected banks was irregular during the past month, with decreases of \$2,718,000 and \$1,037,000 being reported for the weeks ended June 23 and July 14, respectively, and increases of \$10,837,000 and \$6,495,000 during the middle weeks of the period. Although the total of commercial, industrial, and agricultural loans rose by \$13,577,000 during the four-week period, the amount outstanding on July 14, \$702,012,000, continued lower than the total outstanding at the end of 1947, when commercial, industrial, and agricultural loans of these banks aggregated \$711,487,000.

With the exception of loans for security trading, other major categories of loans, including real-estate and "all other" loans, showed moderate increases during the four-week period ended July 14. In contrast with the trend of commercial, industrial, and agricultural loans, which have declined since the first of the year, real-estate loans and "all other" loans have shown a rather steady increase from week to week. Real-estate loans of the selected member banks in leading cities on July 14 totaled \$84,146,000 as compared with \$76,979,000 on December 31, 1947, while "all other" loans increased to \$169,599,000 on the latest reporting date or \$10,083,000 more than were reported at the end of last year.

Changes in the investment portfolios of the selected member banks in leading cities showed a decline of \$6,919,000 in holdings of United States Government securities resulting from a decline in holdings of United States Government bonds and Treasury certificates of indebtedness, offset in part by an increase of approximately \$19,911,000 in Treasury bills and \$1,748,000 in Treasury notes. These banks added to their holdings of other stocks and bonds during the period ended July 14 by \$3,121,000.

CONDITION STATISTICS OF WEEKLY REPORTING MEMBER BANKS  
IN LEADING CITIES—Eleventh Federal Reserve District  
(In thousands of dollars)

Item	July 14, 1948	July 16, 1947	June 16, 1948
Total loans and investments	\$2,249,773	\$2,096,166†	\$2,238,928†
Total loans—Net <sup>a</sup>	1,016,919		
Total loans—Gross	1,023,196	829,317†	1,008,551†
Commercial, industrial, and agricultural loans	702,012	551,358	688,435
Loans to brokers and dealers in securities	6,506	6,176	5,756
Other loans for purchasing or carrying securities	60,439	66,912	62,002
Real-estate loans	84,146	73,651	83,790
Loans to banks	494	144	404
All other loans	169,599	131,076	168,164
Total investments	1,226,577	1,266,849	1,230,375
U. S. Treasury bills	56,251	17,508	36,340
U. S. Treasury certificates of indebtedness	191,676	229,499	195,836
U. S. Treasury notes	95,766	124,442	94,018
U. S. Government bonds (incl. gtd. obligations)	766,948	799,317	791,366
Other securities	115,936	96,083	112,815
Reserve with Federal Reserve Bank	487,298	468,268	493,018
Balances with domestic banks	343,187	309,469	337,520
Demand deposits—adjusted*	1,934,961	1,769,560	1,919,033
Time deposits	411,706	379,266	399,908
United States Government deposits	34,790	11,535	30,738
Interbank deposits	569,316	592,014	557,154
Borrowings from Federal Reserve Bank	400	2,000	None

\*Includes all demand deposits other than interbank and United States Government, less cash items reported as on hand or in process of collection.

<sup>a</sup>After deductions for reserves and unallocated charge-offs.

†Prior to June 30, 1948, the individual classes of loans were reported net; however, the amount of reserves deducted subsequent to June 30, 1948, was so small as to have no significant effect upon the comparability of the data.

Reports of all member banks in the District reflected an increase of \$18,000,000 in loans and investments during June, accounted for by an expansion of loans by \$10,000,000 and an

increase of approximately \$8,000,000 in investment portfolios. Whereas loans of the selected weekly reporting member banks of the District declined during the first six months of the year, the loan volume of non-reporting country banks showed an increase of \$79,000,000 during the six-month period. In view of inflationary developments and, in fact, the threat of even more inflation, the trend of bank loans is being watched very closely by monetary and credit authorities and by others who are interested in following the trend of economic events. If bank credit expansion in the months ahead should exceed normal seasonal trends significantly, it is feared that the resulting increase in the money supply would give another stimulus to the inflationary movement.

CONDITION OF THE FEDERAL RESERVE BANK OF DALLAS  
(In thousands of dollars)

Item	July 15, 1948	July 15, 1947	June 15, 1948
Total gold certificate reserves	\$539,548	\$484,256	\$563,406
Discounts for member banks	400	2,200	720
Foreign loans on gold	7,354	908	8,058
U. S. Government securities	966,570	920,020	939,660
Total earning assets	974,824	927,138	948,428
Member bank reserve deposits	823,332	776,444	844,937
Federal Reserve notes in actual circulation	599,792	584,150	594,569

Reflecting the holiday demand for currency, Federal Reserve notes of this bank in actual circulation increased between June 28 and July 8 by \$10,207,000. Following the 8th, a return flow of currency resulted in reducing the amount of this bank's notes in actual circulation to \$599,792,000, a sum approximately \$5,000,000 more than was outstanding on the comparable date a month earlier. Other changes between June 15 and July 15 in the condition of this Federal Reserve Bank included a decline in gold certificate holdings amounting to \$23,858,000 and an increase of \$26,920,000 in holdings of United States Government securities. This increase in the bank's portfolio of Government securities was reflected in a virtually identical increase in total earning assets, as discounts for member banks were relatively insignificant in amount.

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

City	(Amounts in thousands of dollars)				Annual rate of turnover		
	Debits		End-of-month deposits*	June 1948	June 1947	May 1948	
	June 1948	Pctg. change over 1947					
Arizona: Tucson	\$ 63,274	31	3	\$ 82,326	9.1	7.4	8.6
Louisiana:							
Monroe	30,389	15	—	40,699	9.2	8.5	9.8
Shreveport	130,569	18	2	158,095	10.0	9.2	9.8
New Mexico: Roswell	14,905	28	10	17,343	10.3	8.3	9.2
Texas:							
Abiene	33,185	18	3	41,922	9.6	8.8	9.5
Amarillo	85,613	17	—	84,771	12.4	11.5	13.2
Austin	114,557	21	1	104,933	13.2	11.8	11.2
Beaumont	95,280	30	1	93,805	12.2	10.8	12.0
Corpus Christi	76,995	17	—	73,525	12.7	12.2	12.7
Corseana	10,075	17	10	19,088	6.4	5.4	5.8
Dallas	1,004,961	25	10	734,846	16.8	14.8	15.7
El Paso	119,516	34	5	112,281	12.2	10.3	11.5
Fort Worth	371,878	14	19	274,276	16.2	14.3	13.7
Galveston	74,576	26	12	91,270	9.7	7.9	8.6
Houston	1,091,405	39	7	881,684	15.1	12.5	14.4
Laredo	19,313	31	8	23,380	10.0	8.5	9.2
Lubbock	58,733	26	—	68,913	10.3	10.1	10.3
Port Arthur	35,748	20	2	39,970	10.9	9.4	10.7
San Angelo	84,611	31	11	89,855	10.7	9.0	9.7
San Antonio	259,462	19	4	317,989	9.8	8.4	9.6
Texarkana†	14,871	21	6	22,661	8.0	6.7	7.7
Tyler	40,130	27	3	53,873	9.1	8.0	9.0
Waco	50,804	19	6	62,926	9.7	8.4	9.2
Wichita Falls	60,432	24	11	80,083	9.2	8.9	8.5
Total—24 cities	\$3,891,282	26	8	\$3,520,514	13.4	11.5	12.6

\*Demand and time deposits at the end of the month include certified and officers' checks outstanding but exclude deposits to the credit of banks.

†This figure includes 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 \$25,201.

Bank debits as reported by banks in 24 cities throughout the District increased 8 percent during June and continued at a level approximately 25 percent above the corresponding month of a year ago. The increase in bank debits was general over the

District, as 20 of the 24 reporting cities showed increases ranging from relatively minor amounts to as much as 19 percent in Fort Worth and Austin. Accompanying the increase in bank debits was a further increase in the annual rate of turnover of deposits from 12.6 during May to 13.4 in June. This latest figure compares with a turnover rate during June 1947 of 11.5 and indicates a rather significant increase in the velocity of bank deposits.

Gross demand deposits of the member banks of the District rose during June by approximately \$47,000,000, while time deposits rose by about \$6,600,000. Most of the increase in demand deposits occurred at the reserve city banks, where the total rose from \$2,384,586,000 to \$2,415,559,000, although an increase of approximately \$16,000,000 did occur at the District's country banks. Likewise, a large part of the growth in time deposits during June occurred at the reserve city banks, where the total increased by more than \$5,600,000 as compared with an increase of approximately \$1,000,000 at the country banks. After reaching a total of \$5,319,138,000 in January 1948, gross demand deposits of the member banks of this District declined until April, when the total was some \$331,500,000 less than during the first month of the year. Since April, the trend of deposits in this District has been upward and is reflected by an increase of more than \$57,000,000 from the year's low point which was reached during that month.

## 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
June 1946.....	\$4,957,846	\$486,339	\$2,461,342	\$310,839	\$2,496,504	\$175,500
June 1947.....	4,649,262	540,000	2,234,857	338,684	2,414,405	201,316
February 1948.....	5,088,150	564,973	2,392,425	355,853	2,695,725	209,120
March 1948.....	5,019,464	569,800	2,357,364	357,605	2,661,500	212,195
April 1948.....	4,987,656	574,507	2,354,485	392,306	2,633,171	212,201
May 1948.....	4,997,789	569,656	2,394,586	358,943	2,613,203	210,713
June 1948.....	5,044,942	576,282	2,415,559	364,548	2,629,383	211,734

## SAVINGS DEPOSITS

## Eleventh Federal Reserve District

City	Number of reporting banks	June 30, 1948		Percentage change in savings deposits from	
		Number of sav- ing de- positors	Amount of sav- ings de- posits	June 30, 1947	May 31, 1948
Louisiana: Shreveport....	3	32,719	\$ 25,545,390	- 3.2	0.7
exas:					
Beaumont.....	3	12,086	6,276,843	-10.5	- 0.6
Dallas.....	8	141,151	79,099,636	- 0.01	0.6
El Paso.....	2	32,291	22,824,206	- 5.1	0.2
Fort Worth.....	4	43,173	34,731,691	- 1.7	0.7
Galveston.....	4	23,202	21,924,346	2.5	- 0.03
Houston.....	8	106,015	72,970,498	2.9	0.8
Lubbock.....	2	1,415	1,824,523	- 1.0	2.9
Port Arthur.....	2	6,274	4,846,056	- 8.6	- 1.0
San Antonio.....	5	38,841	46,956,352	- 0.4	0.6
Waco.....	3	10,112	9,698,643	- 0.5	1.6
Wichita Falls.....	3	6,937	4,516,221	- 2.8	0.3
All other.....	55	62,930	54,204,922	- 0.2	0.2
Total.....	102	517,146	\$385,410,327	- 0.5	0.5

Statements of the United States Treasury show that the gross public debt amounted to \$252,292,000,000 on June 30, 1948, a decrease of \$5,994,000,000 during the year. Interest-bearing marketable public debt issues were reduced \$8,356,000,000 during the fiscal year just closed, but that reduction was offset in part by increases in special issues, a net increase in savings bonds outstanding, and net sales of 2½ percent investment series bonds. Since February 28, 1946, when the highest point of the public debt was reached, interest-bearing marketable public debt obligations have been reduced \$39,464,000,000. During that period from the end of February 1946 until June 30, 1948,

decreases totaling \$3,275,000,000 of Treasury bills, \$18,825,000,000 of certificates of indebtedness, \$8,176,000,000 of Treasury notes, and \$9,173,000,000 of Treasury bonds were recorded. During the fiscal year just closed, reductions included \$6,861,000,000 of Treasury bonds, \$2,708,000,000 certificates of indebtedness, and \$2,018,000,000 Treasury bills, offset in part by an increase in the issue of Treasury notes amounting to \$3,233,000,000.

## MEMBER BANK RESERVES AND RELATED FACTORS

## Eleventh Federal Reserve District

(In millions of dollars)

Item	Changes in weeks ended				Cumulative changes	
	July 14, 1948	July 7, 1948	June 30, 1948	June 23, 1948	4 weeks ended July 14, 1948	Jan. 1 to July 14, 1948
Federal Reserve credit—						
local.....	- 1.8	1.1	- 0.4	- 5.6	- 6.7	- 6.8
Interdistrict commercial & financial transactions..	-10.1	- 4.2	2.0	- 7.3	-19.6	-78.3
Treasury operations.....	12.6	25.9	3.3	-18.4	23.4	18.6
Currency transactions.....	1.5	- 6.7	- 2.5	- 1.7	- 9.4	24.3
Other deposits at the Federal Reserve Bank..	0.1	0.2	- 0.2	- 0.1	..	0.7
Other Federal Reserve accounts.....	- 0.1	..	- 0.1	0.1	- 0.1	3.6
Member bank reserve balances.....	2.2	16.3	2.1	-33.0	-12.4	-37.9

Note: Amounts preceded by a minus sign reduce reserves; all others add to reserves.

Interest payments on the public debt during the fiscal year 1948 amounted to \$5,211,000,000, an increase of \$253,000,000 compared with fiscal 1947. The over-all computed average rate on the interest-bearing public debt outstanding on June 30, 1948, was 2.182 percent, compared with 2.107 percent a year ago. That increase in the average interest rate was due to the continued issue of nonmarketable and special issues at higher than average rates. Of course, it should be pointed out that, although the rate on 91-day Treasury bills during the fiscal year was allowed to rise from ⅜ percent to approximately 1 percent, the Treasury recovers a substantial amount of that increased interest cost (as well as the increased interest cost on certificates of indebtedness), since Federal Reserve banks hold the greater part of such securities and pay 90 percent of their net current earnings after dividends into the Treasury. The increase which has occurred in the interest rate on one-year certificates of indebtedness will not be reflected in interest payments until the maturity of such certificates, which occurs in the fiscal year 1949.

## INDUSTRY

Nonagricultural employment in Texas and in the Eleventh Federal Reserve District during the first half of 1948 resumed the upward trend which had prevailed during most of 1947. Following the normal seasonal decline in the first two months of the year, employment turned upward in March and continued to increase in April and May, exceeding the previous all-time high of December 1947. Employment in May was about 2.5 percent above the February low, about 1 percent above the December 1947 peak, and about 5 percent above that in May 1947.

From the February low through May, employment increased in all of the 18 major labor market areas of Texas except Corpus Christi, which showed no change. The largest increases in numbers employed were in the Dallas, Fort Worth, Beaumont-Port Arthur, and Houston-Baytown areas.

The gains in employment were shared by nearly all major nonagricultural industries. Construction led the advance, largely due to the normal spring expansion of this industry.

Reports received by the Texas Employment Commission indicate some further expansion in employment for June and July, with most of the increase occurring at manufacturing plants.

## NONAGRICULTURAL EMPLOYMENT—TEXAS

	(In thousands)			
	May 1948	May 1947	April 1948	Change — May 1948 over May 1947
Total nonagricultural employment.....	2,255.6	..	2,238.8	..
Manufacturing employment.....	379.9	..	375.2	..
Nonmanufacturing employment.....	1,875.7	..	1,863.6	..
Major labor market areas:				
Abilene.....	17.2	17.8	16.8	- 0.6
Amarillo.....	34.1	27.7	34.0	6.4
Austin.....	43.1	42.0	42.9	1.1
Beaumont-Port Arthur.....	69.4	65.7	68.3	3.7
Corpus Christi.....	45.3	47.9	44.9	- 2.6
Dallas.....	223.9	209.2	222.1	14.7
El Paso.....	49.1	47.3	48.8	1.8
Fort Worth.....	126.1	120.9	124.5	5.2
Galveston-Texas City.....	56.6	54.0	56.4	2.6
Harlingen-Brownsville.....	24.2	20.5	24.0	3.7
Houston-Baytown.....	304.7	290.2	303.0	14.5
Longview-Kilgore-Gladewater.....	21.4	20.5	20.9	0.9
Lubbock.....	25.1	25.0	25.0	0.1
San Angelo.....	16.3	14.6	16.2	1.7
San Antonio.....	151.4	148.4	151.5	3.0
Texasarkana.....	29.5	29.2	28.8	0.3
Waco.....	43.1	42.6	43.0	0.5
Wichita Falls.....	29.9	27.6	29.6	2.3
Total.....	1,310.4	1,251.1	1,300.7	59.3

SOURCE: Texas Employment Commission.

Since agricultural employment will reach its normal seasonal peak during the summer or fall months, total employment in Texas and in the District is expected to reach another all-time high at that time.

Unemployment generally has moved downward in recent months. The May 1948 figure of 51,970 unemployed reported for the 18 major labor market areas of Texas is about a third lower than the figure for a year ago. Young workers who left school around the end of May added somewhat to the number of unemployed, but the increases in total employment are likely to absorb a considerable portion of these additions to the labor force.

The daily average production of crude petroleum in the Eleventh Federal Reserve District and in the United States again reached new peaks during June. Production in the District, which totaled 2,695,900 barrels daily, was 37,100 barrels larger than in May and 206,100 barrels in excess of that in June last year. Production outside the Eleventh District rose to 2,789,900 barrels daily, exceeding by 19,100 barrels the total during May and by 181,800 barrels the total for June 1947. On the basis of recent studies of maximum efficiency production rates, the Texas Railroad Commission reduced production allowables in Texas by about 50,000 barrels daily for July and August, but it is anticipated that the effect of this reduction will be counterbalanced largely by production from new wells completed during the period.

The consumption of petroleum products has continued to expand, and estimates of probable consumption during the next nine to twelve months are being revised upward. In order to meet the heavy current demand for petroleum products and to build up supplies of certain products in anticipation of increased requirements later in the year, refinery operations are being increased steadily. In the Eleventh District, crude oil runs to refinery stills were maintained during June at about 1,760,000 barrels daily or about 19 percent higher than in June 1947, and in the United States, reached a new peak of 5,642,000 barrels daily or about 10 percent higher than a year ago. The yield of gasoline, which had been reduced substantially earlier in the year to permit a greater production of heating and fuel oils, has risen steadily in recent months and averaged approximately

41.3 percent in June as compared with the year's low of about 37.6 percent in February and with about 40.1 percent in June last year. On the other hand, the percentage yield of other major products has shown a corresponding decline. Due to the high level of refinery operations, supplies of most refined products have been increasing during the past three months and the decline in stocks of gasoline has been less pronounced than is usual at this season. At the end of June, stocks of the principal refined products ranged from 15 percent to 27 percent higher than on the corresponding date last year. Stocks of crude oil have shown little change during the past three months because the expanding refinery operations have absorbed the increased output, but current stocks are about 13,000,000 barrels lower than a year ago.

## CRUDE OIL PRODUCTION—(Barrels)

Texas: Area	June 1948		Increase or decrease in daily average production from	
	Total production	Daily avg. production	May 1948	June 1947
District 1.....	858,250	28,608	1,708	6,931
2.....	5,209,600	173,653	1,613	7,223
3.....	14,926,900	497,563	4,456	363
4.....	7,692,500	256,417	791	8,947
5.....	1,409,100	46,970	601	705
6.....	9,331,850	311,062	721	- 22,558
Other 6.....	3,686,450	122,881	942	6,884
7b.....	1,449,250	48,308	3,164	8,901
7c.....	1,380,800	46,027	988	7,034
8.....	20,928,750	697,625	9,602	137,085
9.....	4,196,450	139,882	1,395	- 1,008
10.....	2,588,150	86,272	1,706	- 1,328
Total Texas.....	73,658,050	2,455,268	34,178	168,791
New Mexico.....	3,832,900	127,763	1,605	21,268
North Louisiana.....	3,386,300	112,877	377	16,084
Total Eleventh District.....	80,877,250	2,695,908	37,098	206,143
Outside Eleventh District.....	83,697,550	2,789,918	19,118	181,770
United States.....	164,575,800	5,485,826	56,216	387,913

SOURCE: Estimated from American Petroleum Institute weekly reports.

Drilling operations, as measured by the number of wells completed, have risen sharply during the past three months, which brought total completions in the Eleventh District during the first half of the year to 6,692 wells, an increase of about 36 percent over completions during the corresponding period of 1947. In the United States, completions totaled 18,302 wells or nearly 20 percent more than in the same period of 1947.

The value of construction contracts awarded in the District during June declined sharply from the postwar peak of \$94,-865,000 reached in May. In that month the increased volume reflected the letting of several large contracts, which coincided with awards for an increased volume of smaller projects. The June volume of \$54,714,000, while 41 percent under that of May, was only moderately below the average for the first four months of the year and was 24 percent larger than in the corresponding month of 1947. Total awards of \$395,000,000 during the first half of 1948 were 20 percent larger than in the corresponding period of 1947. While awards for residential building were up only 10 percent, those for all other classes of construction showed an increase of 26 percent.

## VALUE OF CONSTRUCTION CONTRACTS AWARDED

	(In thousands of dollars)				
	June 1948	June 1947	May 1948	January 1 to June 30 1948	
Eleventh District—total....	\$ 60,703	\$ 43,967	\$ 92,817	\$ 400,501	\$ 329,585
Residential.....	18,550	20,086	29,099	140,120	128,346
All other.....	42,153	23,881	63,518	260,381	201,239
United States*—total....	935,188	605,070	970,789	4,766,795	3,492,645
Residential.....	355,296	209,458	369,780	1,824,569	1,468,902
All other.....	579,892	395,612	601,009	2,942,226	2,023,743

\*37 states east of the Rocky Mountains.

SOURCE: F. W. Dodge Corporation.

The detailed data on construction contract awards in Texas during the first five months of 1948 show that some marked changes from the corresponding period of last year have occurred

in the distribution of awards among the various classifications of construction. In the classifications comprising the bulk of awards, the major increases included: office and store buildings,

1947, declined 78 percent. In the residential classifications, awards for one-family dwellings being built for sale or rent declined 25 percent.

BUILDING PERMITS

City	June 1948		Percentage change valuation from		Jan. 1 to June 30, 1948		Percentage change valuation from 1947
	No.	Valuation	June 1947	May 1948	No.	Valuation	
Louisiana:							
Shreveport.....	432	\$ 2,012,515	117	9	2,069	\$ 21,421,820	296
Texas:							
Abilene.....	90	588,621	157	56	569	3,039,336	29
Amarillo.....	221	789,834	-17	-38	1,137	5,446,519	45
Austin.....	321	2,034,886	69	8	2,000	13,158,085	47
Beaumont.....	368	1,044,350	98	42	2,084	4,810,465	102
Corpus Christi..	321	1,307,191	-2	42	1,812	9,890,279	36
Dallas.....	1,555	7,361,639	72	-19	8,291	53,188,465	120
El Paso.....	113	1,055,355	223	2	700	5,772,023	74
Fort Worth.....	593	3,567,453	84	46	3,244	14,933,551	30
Galveston.....	176	400,630	91	82	972	1,726,482	45
Houston.....	731	5,170,980	-42	-35	4,710	52,735,197	60
Lubbock.....	252	1,345,982	28	40	1,440	6,525,573	11
Port Arthur.....	137	225,687	-6	9	742	1,149,645	-2
San Antonio....	1,153	2,191,735	-4	-35	7,699	18,319,501	51
Waco.....	183	1,400,253	31	88	929	7,202,746	87
Wichita Falls...	68	411,150	-6	154	415	2,378,461	108
Total.....	6,714	\$30,908,261	19	-7	33,813	\$221,748,148	74

257 percent; religious buildings, 245 percent; educational buildings, 96 percent; apartment buildings, 140 percent. On the other hand, awards for manufacturing buildings, which constituted 23 percent of total awards during the first five months of

COTTONSEED AND COTTONSEED PRODUCTS

	June 1948			
	Texas		United States	
	August 1 to June 30 This season	Last season	August 1 to June 30 This season	Last season
Cottonseed received at mills (tons).....	1,131,862	568,069	3,980,210	3,065,926
Cottonseed crushed (tons).....	1,151,414	608,930	3,983,923	3,015,377
Cottonseed on hand June 30 (tons).....	34,876	16,393	98,815	108,255
Production of products:				
Crude oil (thousand pounds).....	358,338	184,724	1,242,385	948,871
Cake and meal (tons).....	542,041	286,143	1,847,711	1,328,672
Hulls (tons).....	262,007	135,250	899,096	709,263
Linters (running bales).....	381,840	207,757	1,249,464	968,435
Stocks on hand June 30:				
Crude oil (thousand pounds).....	2,698	855	10,157	7,360
Cake and meal (tons).....	30,030	16,619	94,516	87,958
Hulls (tons).....	13,065	7,779	45,331	40,069
Linters (running bales).....	43,854	13,087	108,208	90,740

SOURCE: United States Bureau of Census.

DOMESTIC CONSUMPTION AND STOCKS OF COTTON—(Bales)

	June 1948	June 1947	May 1948	August 1 to June 30	
				This season	Last season
Consumption at:					
Texas mills.....	13,509	11,696	12,435	143,311	187,403
United States mills.....	801,142	729,412	785,440	8,719,452	9,347,031
U. S. stocks—end of month:					
In consuming estabm'ts...	1,741,450	1,684,658	2,006,617		
Public stg. & compresses..	1,673,619	1,233,283	2,232,274		

August 1, 1948

## NATIONAL SUMMARY OF BUSINESS CONDITIONS

(Compiled by the Board of Governors of the Federal Reserve System)

Total output at factories and mines showed little change in June and the early part of July after allowance for seasonal influences. Department store sales were at record levels for this season. Price of meats and steel increased sharply in July, while cotton and grains declined.

## INDUSTRIAL PRODUCTION

Industrial production in June continued close to the May level, and the Board's seasonally adjusted index was 192 percent of the 1935-39 average as compared with 191 in May and 188 in April, when output was reduced by a strike at bituminous coal mines.

Output of durable goods increased further in June, reflecting mainly larger production of automobiles following settlement of an industrial dispute at the plants of a leading producer. Activity in the automobile industry reached earlier postwar peak rates in the first half of July.

Steel production in June continued at the May rate. Output of open hearth steel was slightly smaller, while electric steel production increased further by 5 percent to a new record level, exceeding the wartime peak. Output of nonferrous metals was reduced somewhat owing largely to a curtailment of aluminum production during the Columbia River floods.

Production of nondurable goods in June continued at a seasonally adjusted level of 178 percent of the 1935-39 average. This level has prevailed, with slight variations, since the beginning of the year. Cotton consumption and paperboard production declined somewhat in June. Meat production, however, increased substantially following the end of a labor dispute which had curtailed packing operations since the middle of March. Activity in most other nondurable goods industries was maintained at the May rate or advanced slightly.

Minerals output declined 2 percent from the exceptionally high May rate, as bituminous coal output was reduced owing to the beginning of the miners' 10-day holiday on June 28. Crude petroleum production continued to advance.

## CONSTRUCTION

About 93,500 dwelling units were started in June, according to preliminary estimates of the Bureau of Labor Statistics. This number was somewhat smaller than the postwar high of 97,000 in May, but still considerably larger than the 77,000 units started in June 1947. Dollar volume of all new construction put in place, according to joint estimates of the Departments of Commerce and Labor, continued to increase in June and reached a record amount of \$1,600,000,000.

## DISTRIBUTION

Value of department store sales showed about the usual seasonal decline in June and the first half of July. The Board's adjusted index remained around a record level of 310 percent of the 1935-39 average, which was about 7 percent higher than in the corresponding period a year ago.

Rail shipments of grain and forest products were in substantially larger volume in June, while loadings of most other classes of freight declined somewhat from the May rate after

allowance for seasonal changes. Total loadings in the first half of July were above the same period a year ago, reflecting mainly a larger volume of coal shipments.

## AGRICULTURE

Production of crops this year, as indicated by July 1 conditions, will be substantially larger than in 1947 and in record volume. The most important increase is forecast for corn, output of which is expected to be about 40 percent larger than last year's drought-damaged crop. Estimated wheat production, although smaller than last year's crop of 1.4 billion bushels, would still be the second largest crop on record. Cotton acreage is officially estimated to be up 10 percent from last year. Marketings of livestock have expanded following the end of the packing strike, but the volume has remained 5 to 10 percent below year-ago levels.

## COMMODITY PRICES

The general wholesale price level rose further in July, reflecting sharp increases in prices of meats and steel products. Meat and livestock prices in mid-July were about 25 percent higher than a year ago. Prices of most other farm products and foods continued to show little change or declined in July. Cotton and grain prices were somewhat below year-ago levels.

Prices of most iron and steel products were raised by 10 percent or more in July. Coal prices were also advanced, while prices of petroleum products eased and prices of cotton goods declined somewhat further.

## BANK CREDIT

Quarterly income tax payments by businesses and individuals during the last half of June substantially increased Treasury deposits at Reserve Banks and reduced commercial bank reserves and deposits. Banks met the drain on reserve funds largely through sales of Government securities to the Reserve Banks and through reductions in their excess reserves. During the first three weeks of July, reserves at banks increased somewhat. The Treasury drew down its balances to retire bills. Federal Reserve Bank holdings of bills were thereby reduced, but the System made net market purchases of Government securities in approximately equal volume and thereby supplied banks with additional reserves.

Commercial and industrial loans increased moderately in banks in leading cities during June and the first half of July. Consumer and real-estate loans continued to expand. Banks reduced further their holdings of Government securities.

## SECURITY MARKETS

Common stock prices declined sharply in the third week of July, following four weeks of relatively little change. A substantial portion of the mid-March to mid-June gain in prices was lost.

Prices of Government bonds changed little in the first three weeks of July, following some decline in June, but prices of corporate bonds declined further.