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The University of Texas

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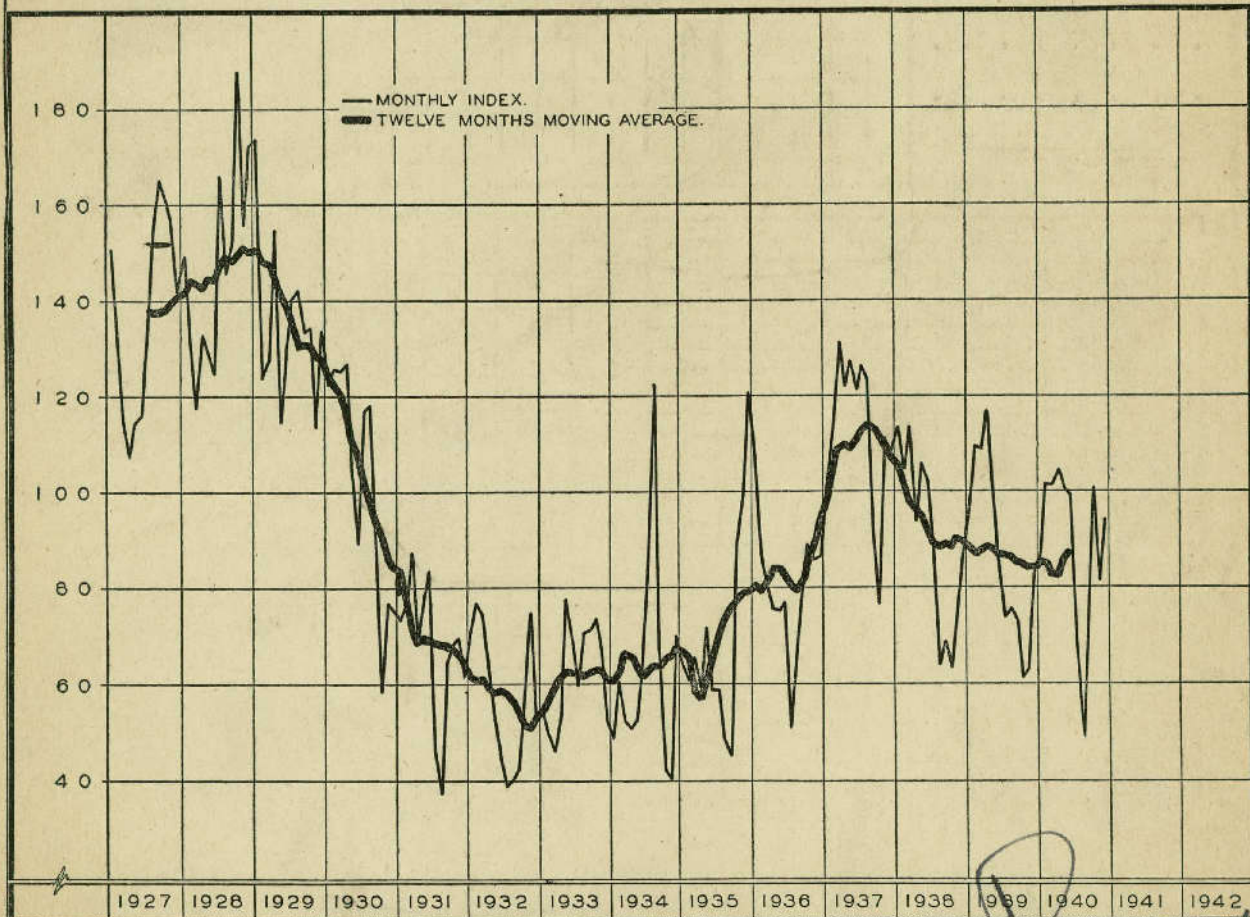
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AVERAGE MONTH · OF · 1928-'32 = 100%

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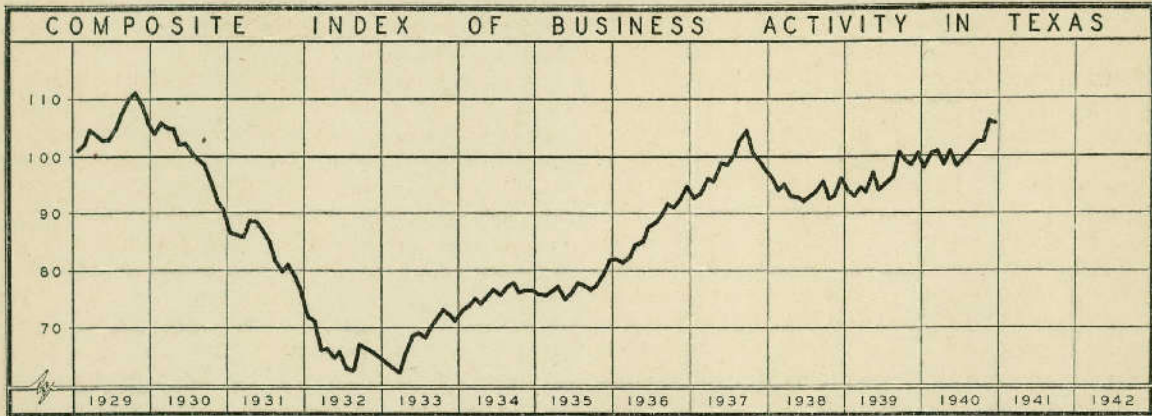


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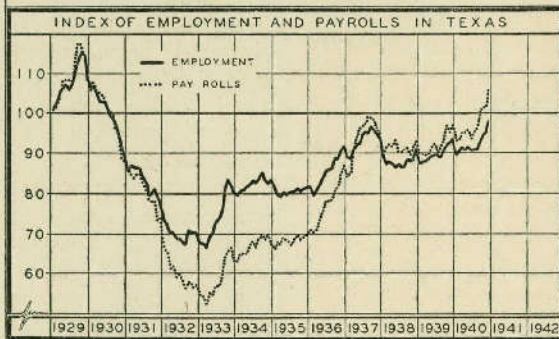
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INDEXES OF BUSINESS ACTIVITY IN TEXAS

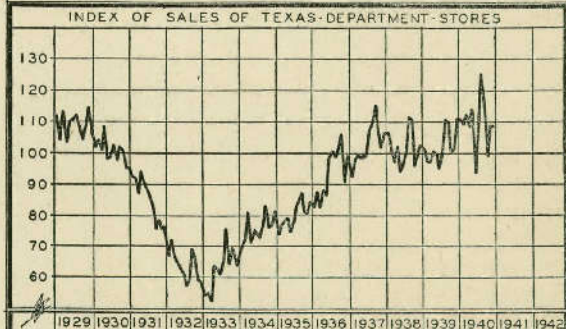
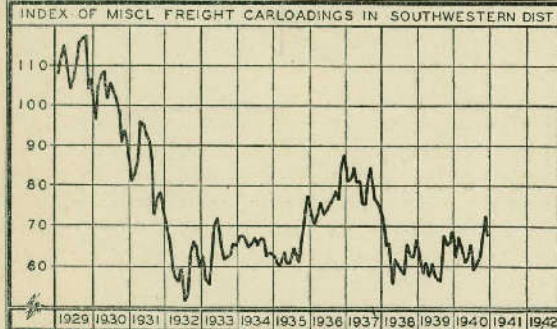
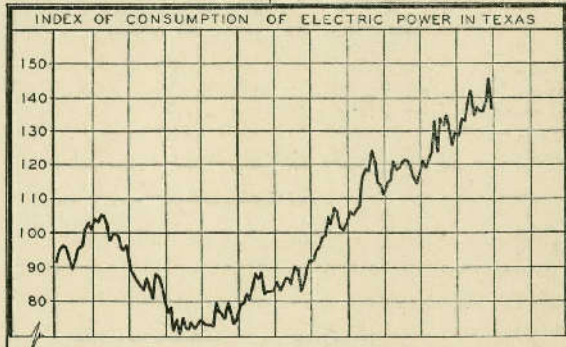
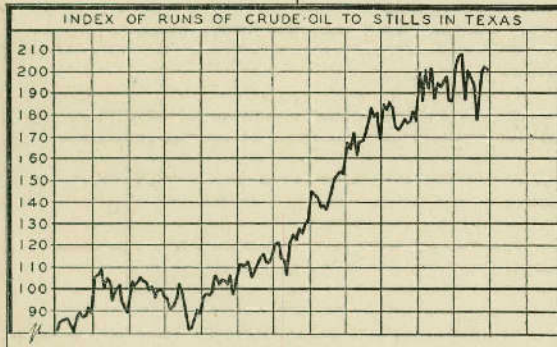
AVERAGE MONTH OF 1930 = 100 %
 WEIGHT IN COMPOSITE INDEX
 EMPLOYMENT — 25% FREIGHT CARLOADINGS — 20%
 PAY ROLLS — 25% CRUDE OIL RUNS — 5%
 DEPARTMENT STORE SALES — 10% ELECTRIC POWER CONSUMPTION — 15%



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Business Review and Prospect

NATIONAL DEFENSE

Appropriations and expenditures for National Defense currently and in prospect assure a rate of industrial activity in this country (which may well continue for several years), never before reached in American history. Because of the nature and purpose of these expenditures, however, the ultimate effect of this upsurge in business activity on the standard of living is not so clear. Many of the unemployed are finding jobs in private industry, and as a result non-agricultural pay rolls are rising, while costs of living are not yet changing measurably. These conditions promise to continue for the next several months at least. Thus currently, at any rate, the standard of living is rising and is giving the appearance of the return of prosperity. The real test will come when the transition is made back again from war economy to peace economy which must come sooner or later. Sound industrial statesmanship, therefore, calls not only for an efficient defense program but a subsequent peace time economic program which will enable this country effectively to meet the intense competition for markets which is certain to come and at the same time to maintain a high standard of living in this country.

Appropriations and authorizations for defense during the first half of the fiscal year total nearly 18 billion dollars; and allocations during this period amounted to nearly 11 billion dollars to which more than a billion dollars have been added during January to date.

The ranking of the states in defense allocation for the six months ended December 31st is as follows:

1. New Jersey	1,257,778,244	9. Washington	494,928,429
2. California	1,212,759,906	10. Illinois	315,565,343
3. New York	1,190,543,926	11. Missouri	300,557,821
4. Pennsylvania	936,519,232	12. Maryland	296,530,324
5. Virginia	840,848,836	13. Indiana	248,116,360
6. Massachusetts	806,789,526	14. Ohio	234,432,138
7. Michigan	565,693,587	15. Texas	193,843,058
8. Connecticut	512,772,908	All others	1,529,930,415
		TOTAL	10,937,610,053

Although direct defense allocations have been made primarily to states in the Northeast, Great Lakes, and Pacific Coast areas, the practice of sub-contracting the work represented by these expenditures is likely to result in the distribution of the funds in a manner quite different from that indicated in their original distribution among the states.

GENERAL BUSINESS

Year to year comparisons in the national indexes of industrial activity during the next few months are practically certain to become increasingly more favorable. This situation would prevail even if the industrial index were not to rise during the first half of the current year but were to remain constant, because last year, the industrial index declined almost continuously during this

period. Not until it became obvious that this country would launch on a huge defense program was the downward trend definitely reversed and the strong upward surge begun which has continued without interruption up to the present time.

Barron's index of industrial activity, which is probably the best available indicator of physical production and trade since it makes adjustments both for population growth and long time trend, as well as for seasonal variation, showed another substantial gain. For the week ended January 11, the index stood at 96.5, a gain of 1.7 points over the preceding week and 5.3 points over the corresponding week last year, the widest year to year margin of gain since early last fall. It is significant, however, that Barron's index still is 18.6 points below that attained at its peak in 1929 when it reached 115.1. This fact is not so surprising when it is considered that there are still 7 million or more potential workers unemployed. Even if unemployment is reduced by 3 million during the current year as is now estimated there will still be a large army of unemployed a year from now. This situation represents but one of the several factors which makes inflation unlikely for some time to come if sound business and governmental policies are maintained.

It is not likely that industries closely connected with the defense program will show much gain in rate of activity until plant expansion has been completed because many of them are already operating at capacity; but rising pay rolls and farm cash income will have a stimulating effect upon consumer goods industries which will gain momentum as the year advances. With total national income expected to increase nearly 10 billion dollars over 1940, retail dollar sales during the current year are expected to be well above those of 1929 and, therefore, the largest in our history. The gain in physical volume of retail trade over 1929 will be even greater than the increase in dollar sales because of the substantially lower level of prices which is expected to prevail this year in comparison with 1929, even after allowing for some increase in retail prices over present levels.

TEXAS BUSINESS

Industry and trade in Texas showed virtually no change from November to December; but the margin of gain in December over the corresponding month in 1939 widened considerably. Increases in the indexes of employment, pay rolls, and oil refining from November to December were offset by declines in miscellaneous freight car loadings, department store sales, and electric power consumption, after adjustment was made for seasonal variation. Indications are that the upward trend in the composite index will soon be resumed; and because of rising pay rolls and increasing farm cash income, it is expected to reach an all-time peak before many months.

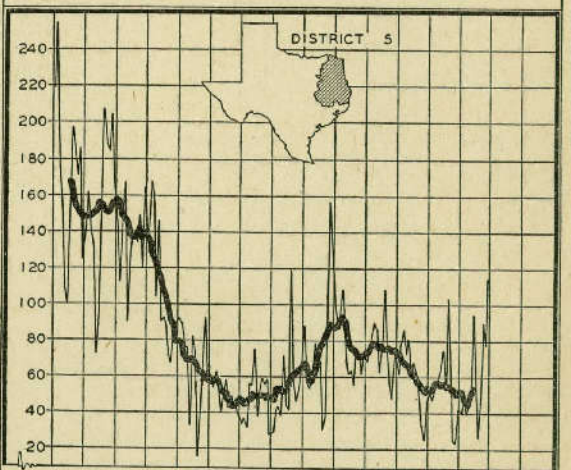
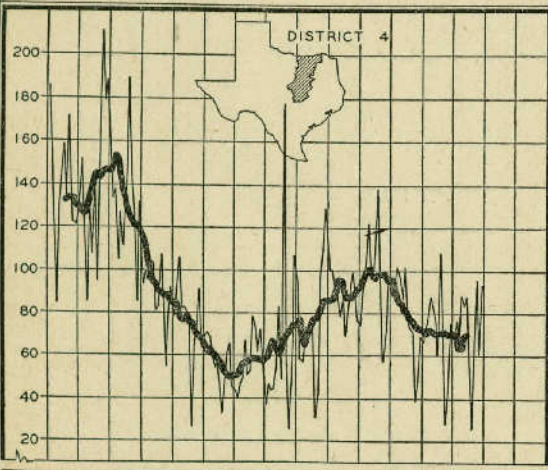
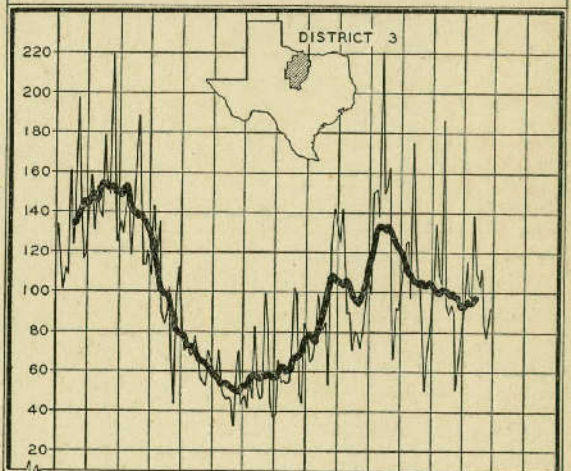
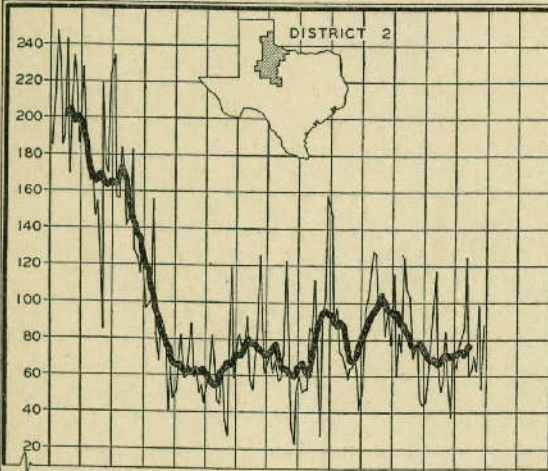
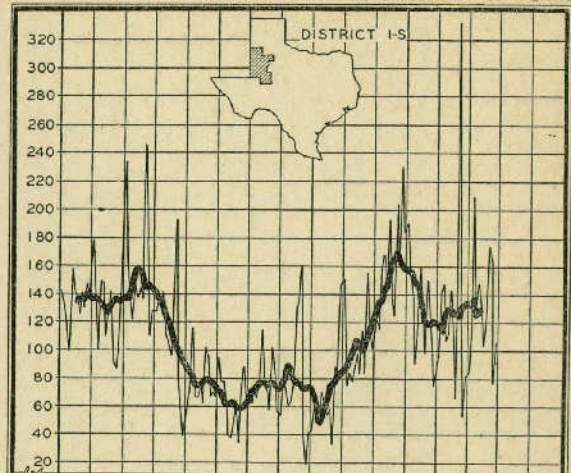
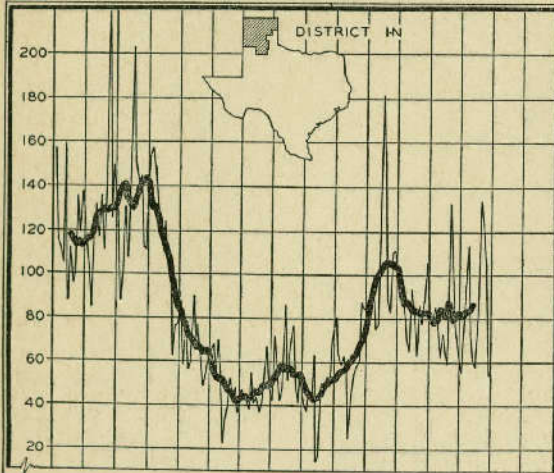
For Other Texas Data, See Statistical Tables at the End of This Publication

INDEX OF AGRICULTURAL CASH INCOME IN TEXAS BY DISTRICTS

— MONTHLY INDEX
 - - - TWELVE MONTHS MOVING AVERAGE

AVERAGE MONTH OF 1928-32 = 100%

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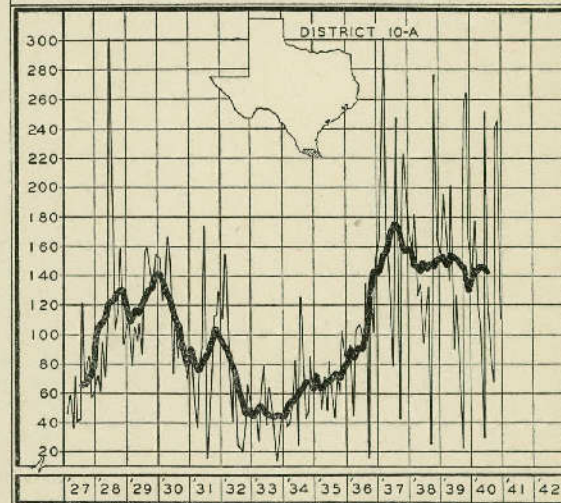
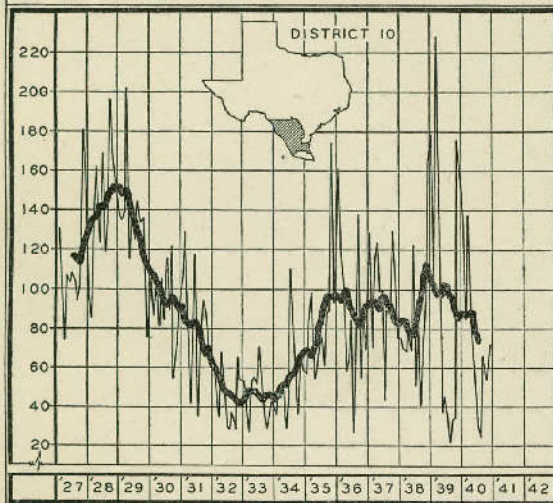
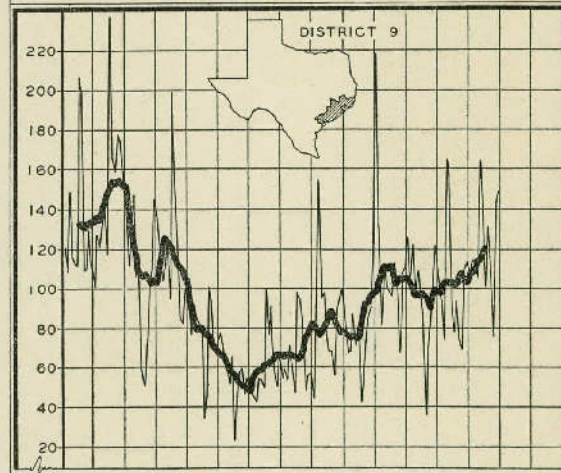
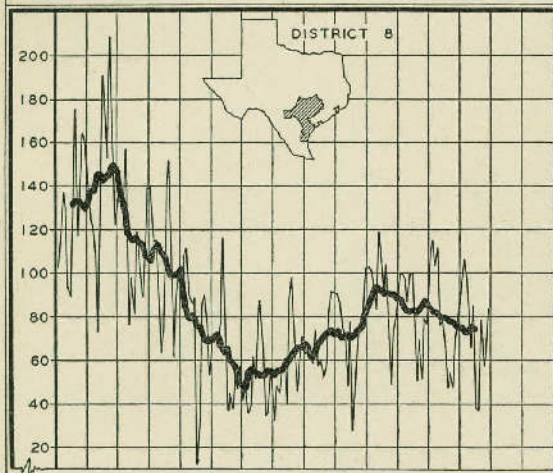
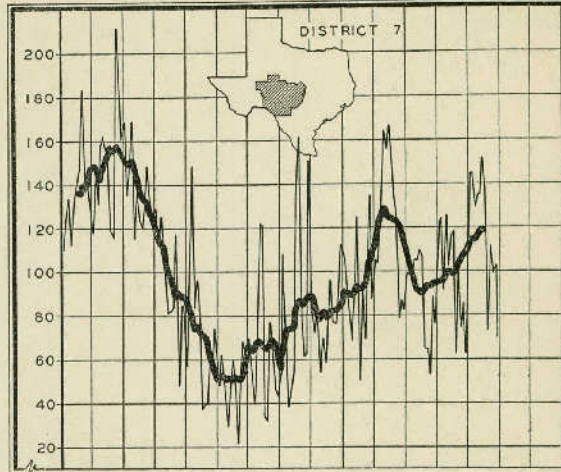
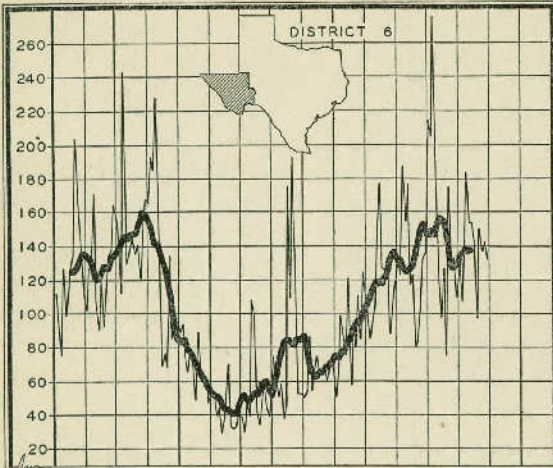
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INDEX OF AGRICULTURAL CASH INCOME IN TEXAS BY DISTRICTS

AVERAGE MONTH OF 1928-32=100%

BUREAU OF BUSINESS RESEARCH
THE UNIVERSITY OF TEXAS

— MONTHLY INDEX
— TWELVE MONTHS MOVING AVERAGE



'27 '28 '29 '30 '31 '32 '33 '34 '35 '36 '37 '38 '39 '40 '41 '42

'27 '28 '29 '30 '31 '32 '33 '34 '35 '36 '37 '38 '39 '40 '41 '42

DECEMBER BUSINESS INDEXES IN TEXAS

	Dec. 1940	Dec. 1939	Nov. 1940
Employment	98.0	93.0	95.2
Pay Rolls	106.2	96.8	101.6
Miscellaneous Freight Carloadings	68.2	68.7	72.3
Crude Runs to Stills	200.7	186.3	201.5*
Department Store Sales	108.9	110.6	108.9
Electric Power Consumption	137.7	129.5	146.8*
COMPOSITE INDEX	106.3	100.7	106.6*

*Revised.

Contributing also to the expected increase in business activity in this State are the defense expenditures of the Federal Government. Allotments to Texas at present aggregate upward of 200 million dollars, and the amount is increasing constantly. It is possible that in addition to the direct allotment of contracts to this State, Texas may gain additional advantages from the practice of subcontracting.

Industrial and public leaders in Texas would do well to be on the alert for the opportunities which subcontracting practices in connection with the defense program will afford for utilizing existing plant capacity in this State to the best advantage.

FARM CASH INCOME

Cash income from agriculture in Texas during December as computed by this Bureau was \$23,917,000, an increase of more than 13 per cent over the \$21,104,000 during the corresponding month in 1939. For the entire year 1940 the Bureau's computations indicate a cash income of \$423,642,000 compared with \$398,187,000 in 1939, an increase of about 6 per cent. Because of the difficulty in securing complete data on truck shipments and local marketings the foregoing figures represent an understatement estimated at between 6 and 10 per cent. Thus actual farm cash income in Texas during 1940 is estimated at slightly under \$465,000,000 and in 1939 at somewhat less than \$438,000,000. According to the federal Bureau of Agricultural Economics, government subsidies to farmers in Texas during 1939 amounted to \$110,500,000. If this figure is added to the estimate of farm cash income given above, farm cash income, plus subsidy payments in Texas during 1939, amounted to nearly \$550,000,000. Assuming government subsidy payments during 1940 to have been equal to those of 1939, the combined income from subsidies and agricultural products during last year amounted to about \$575,000,000.

Improvement in farm cash income from 1939 to 1940 was by no means uniform among the crop reporting districts and sub-districts of the State, as the following table shows. It will be noted that South Texas, represented by districts 10 and 10-A, makes the most unfavorable showing.

INDEX OF AGRICULTURAL CASH INCOME IN TEXAS

Districts	Dec. 1940	Nov. 1940	Dec. 1939	Cumulative Income	
				Jan.-Dec. 1940	Jan.-Dec. 1939
				(000 Omitted)	
1-N	54.8	104.0	68.9	37,842	35,844
1-S	104.3	79.7	81.3	36,644	33,460
2	88.1	53.6	69.3	48,189	39,498
3	92.8	84.0	73.0	22,298	20,577
4	93.9	60.8	74.9	77,318	73,626
5	113.1	78.7	41.4	35,745	33,443
6	132.1	142.7	109.7	24,102	24,750
7	69.5	102.2	62.1	43,575	35,178
8	83.5	64.5	80.3	34,132	36,680
9	149.0	142.9	113.1	31,412	25,445
10	72.0	62.3	154.8	10,300	12,974
10-A	110.6	245.8	162.7	22,085	26,712
STATE	94.1	81.3	82.9	423,642	398,187

In this connection attention is called to the cover chart of this issue of the REVIEW and the two charts accompanying the present article. The heavy graphs representing the twelve months' moving average of the indexes of farm cash income from 1927 to 1940, inclusive, show at a glance the current relative position of agriculture in Texas and the various crop reporting districts of the State. On the cover page of the December, 1940, issue of the REVIEW is a chart giving the Bureau's computed farm cash income for the principal products for the State and for each of the crop reporting districts during the period from 1927 to 1939 inclusive.

It will be noted that for the State as a whole farm cash income in Texas is still far below that of the late 1920's. A number of crop reporting districts, however, especially in West Texas, have reattained a level of farm cash income which compares favorably with that of twelve to fourteen years ago. In general it may be said that those crop reporting districts of the State, in which cash income is largely dependent on cotton, make a relatively unfavorable showing; while the districts, in which the livestock industries predominate, make the most favorable comparisons. This situation is likely to continue until the agricultural readjustments which are now gradually taking place are much farther advanced than at present, for it will take time, even with an aggressive and pointed educational program, to develop dairy, poultry, and beef farmers in areas where cotton growing has so long held sway.

In spite of the drab outlook for the cotton market, agricultural farm cash income in Texas during 1941 promises to continue the upward tendency which began several months ago. Contributing to the moderately optimistic outlook are the favorable moisture conditions which now prevail throughout most of the State and the rising tendency of prices for a number of important Texas farm products.

F. A. BUECHEL.

The Research and Records Activities of the Texas Work Projects Administration

"To provide work for needy persons on useful public projects" has been established by Congress as the basic principle for the operation of the Work Projects Administration. In order to make this principle effective, certain basic policies have been developed, among them the following: First, people in need shall be assigned, whenever possible, to work for which they are best equipped by training and experience; second, no project shall be operated that will displace people now employed or those who would otherwise be employed to perform such work; third, the projects to be operated shall be selected, planned, sponsored and partly financed by local, state or federal governmental agencies, other than the Work Projects Administration, and shall be of value to the general public either through general use or through use by public agencies.

Projects to do research and to install modern record systems for public agencies have proved to be among the best types upon which to use the available unemployed professional and clerical people who have been certified by local relief agencies as eligible for WPA employment. Large numbers of people can be employed on such projects without displacing presently employed persons or preventing others from obtaining employment. Public agencies recognize the need for factual data as a basis for action, and know the importance of adequate record systems in maintaining the efficiency and effectiveness of their operations, but frequently they do not have sufficient funds to finance such activities. None of the current work of the sponsoring agencies may be done by WPA workers.

The scope of the WPA research and records program is, therefore, determined by the needs of federal, state, county, municipal and other local agencies for non-recurring clerical and research assistance. Because of the diversity of the program, only some of the more important and typical projects can be listed.

Basic surveys of the mineral resources in 65 counties, and of underground water resources in 73 counties, have been made; a project assembling all available geological data concerning every oil well drilled in Texas will lay the basis for better-planned exploitation of oil resources; and a project studying the causes of cotton root rot will, if successful, make an invaluable contribution to the economy of the South.

Data needed for intelligent social, economic, and industrial planning have been collected by such projects as: The State-wide study of the adequacy of the public schools, with suggested reorganization plans; the Bureau of Business Research sponsored project to re-tabulate, for the states in the Gulf Southwest, basic county census data by natural regions from 1900 to 1940 inclusive; the detailed housing and land-use survey of Houston; the fifteen-year-trend study of land use, vacancies, and the movement of population now nearing completion in Dallas and Houston; and the detailed studies of causes

of death, completed in Dallas and Houston and in progress in Fort Worth.

Detailed building records have been prepared for Fort Sam Houston and Fort Bliss; the records of the Station Hospital at Fort Sam Houston have been improved. Revised records systems have been installed by the Immigration and Naturalization Service.

Modern police and water-utility record systems have been installed in several cities; tax surveys have discovered more than 3,000,000 acres of untaxed rural lands; up-to-date tax-records systems have been installed for several counties and cities; and studies have been made of municipal assessment practices, water-rate structures, and the most economical routing of water-meter readers.

The Statewide Records Project has renovated or indexed some or all of the court records, commissioners' court minutes, property records, or vital statistics records in more than 125 counties. It is also publishing, for each county, an inventory of the records, and an index to the probate cases. The Texas Writers' Project has prepared a number of guide books with historical sections, including *Texas, A Guide to the Lone Star State*.

The accomplishments mentioned above are not those of WPA, but of the many sponsoring agencies with the assistance of WPA. The Research and Records Section is not a research agency *per se*; rather, it occupies the position of a research and records foundation, which makes clerical labor available to public agencies for certain specified work, under certain specified conditions.

In addition to the general eligibility requirements, one of the most important conditions of project approval is that the work must be carefully planned. The specific objectives, the scope of the project, and the procedure to be followed on the project must be given in detail, as well as careful estimates of the amount of work to be done and the time required. This detailed plan, in addition to serving as a "blueprint" for the operation of the project after it is approved, enables the WPA to determine whether the proposed work is eligible, whether it will be of sufficient value to justify the expenditure of funds, and whether it can be successfully done as a WPA project with the available certified labor.

Experience has indicated that in order for work to be successfully prosecuted as a WPA project, it must be of such nature that it can be adapted to the mass-production or factory system of production, as opposed to the individual or craft system. Under the mass-production system each unit of work is broken down into its component parts, and each individual on the project specializes on one or, at most, a few of the parts. This materially decreases the amount of time required for training, and makes it possible to use satisfactorily people who are, on the average, somewhat less qualified because of age, training, or general ability than those in private employment. Moreover, the mass-production system lends itself to the WPA policy of careful checking

of each important step to insure the accuracy of the work done.

One of the research and records program's major problems, and one of the sources of its greatest strength, originates in the requirement that projects be selected, planned, and sponsored by public agencies other than the Work Projects Administration. Planning of project activities, particularly of a research nature, by numerous agencies creates a tendency toward an uncoordinated and unintegrated program, because the sponsoring agency seldom has a complete and accurate view of all the material available elsewhere or the needs of other agencies. The WPA makes every effort consistent with its basic policy of local selection and planning of projects to coordinate and integrate the program. Sponsors are urged to clear with other agencies in the community before submitting proposals, to tabulate data on a comparable basis, and to use material made available by other projects whenever possible.

Sponsorship by local, state and federal agencies, however, ties the operation of the program directly into the needs of the communities, the State, and the Nation, thus insuring the use of the results on the level of government where they will be most useful, and assuring adjustments of the program to better serve the public interest.

The soundness of the principle of public sponsorship is indicated by the slight adjustments being required to fit the research and records projects into a total national defense program. Work under way in cooperation with the Army, Navy, and Department of Justice is being expanded by giving priority in the assignment of workers to projects certified by the Secretary of War or the Secretary of the Navy "as being important for military or naval purposes." A large part of the available workers will be used on such projects.

Special emphasis is being placed on projects to gather data needed for the social, economic, and industrial development of the State; such data are even more important in a time of crisis than under normal circumstances. Emphasis is also given those projects most directly contributing to increasing the efficiency and effectiveness of local governmental units. Since such agencies provide basic services, such as fire, police, and health protection, sanitary facilities, the water supply, and the like, the efficiency and effectiveness with which they operate are of prime importance in an emergency.

D. ROY PARKER, *State Supervisor
Research and Records Projects.*

Financial

The year 1941 may turn out to be one of the most critical in the history of the nation from the point of view of financial developments. It would be futile to attempt to predict with accuracy the nature of the developments which may occur in the monetary, banking, fiscal, and price system of the economy. However, one can speculate on the basis of recent past and current developments. Furthermore, it is prudent to appraise the significance of the current financial situation and to direct attention to some of the financial problems which probably will beset the nation.

The monetary gold stock of the country increased during 1940 by \$4,350,000,000. This extraordinary influx of the yellow metal increased American gold reserves to more than 22 billion dollars—estimated to be approximately 75 per cent of the world's supply of monetary gold—and raised anew the seriousness of the gold problem to this country. A variety of proposals have been advanced by different writers seeking a solution to this problem which has been created by the Midas-touch that has become a characteristic of the United States, but it is doubtful whether anything short of a gradual depletion of the gold stocks of other nations can check the flow of gold to the United States so long as the existing world situation continues as it is. Gold¹ imports from Canada and the United Kingdom exceeded three billion dollars during 1940, reflecting the transfer to the United States of a very substantial part of the gold reserves of these two countries; together with a considerable amount

of their new gold production. Although the flow of gold during 1941 will be in the same direction, it should be of somewhat smaller magnitude.

As a consequence of the increase in the gold stock, excess reserves of member banks increased by approximately \$1,400,000,000 during 1940. The fact that excess reserves increased by less than the gold stock was due to the offsetting effect of an increase of \$1,135,000,000 in currency in circulation, an increase of \$736,000,000 in foreign balances at the Federal Reserve Banks, a decrease of \$319,000,000 in Reserve Bank credit, reflecting principally the sale of government securities from the Open Market Account, and an increase in other nonmember deposits of approximately \$343,000,000.

The future course of excess reserves will depend upon the trend of a number of factors, but especially gold imports, the demand on the part of business and industry for bank credit, the demand for currency, the policy of the Federal Reserve Board in respect to raising legal reserve requirements, and, temporarily, the sale of securities to the banking system by the Treasury. The special report to the Congress by the Board of Governors of the Federal Reserve System, and its associated administrative bodies (discussed later in this article) offers further evidence that the Board's policy is to oppose any further increase in excess reserves. This policy, together with a probable increase in demand for currency and bank credit, may be sufficient to offset the expanding effect of additional gold imports, so that the current year may witness little increase, if not an actual decrease, in bank

¹THE TEXAS BUSINESS REVIEW, Vol. XIV, Nos. 2 and 3 presented a discussion of the American gold problem.

reserves, especially should evidence of an incipient inflationary development appear.

Demand deposits of reporting Federal Reserve member banks in 101 cities increased without significant interruption from \$18,566,000,000 to \$22,299,000,000, an increase for the year of \$3,733,000,000—or 20 per cent. This extraordinary increase in deposits reflects the enormous volume of gold imports referred to above and the pump-priming and defense expenditures of the Treasury. If the Treasury actually is able to expend, during 1941, a sum even approaching the budgetary estimates, a further very substantial increase in deposits will occur. Of course, to the extent that Government revenue is obtained through taxation or by drawing on current savings, Treasury expenditures would not increase deposits. It is the writer's opinion, however, that the easy—but dangerous—way of financing, namely, the sale of securities to commercial banks, will loom very large in the Government fiscal program.

Very likely there will be a revision of our tax system, for there is a generally recognized need for additional tax revenue. However, events of the past few years cause one to doubt that the revenue factor will take precedence over such factors as the prevention of war millionaires, redistribution of wealth, or other factors of a punitive or social reform nature. It might be pertinent to mention that under present tax laws it is already somewhat difficult to become a war millionaire, inasmuch as 70–80 per cent of a million dollar income is consumed by taxes. From the point of view of securing additional revenue—and that should be our principal objective under existing circumstances—income tax exemptions should be radically lowered in order to bring in as many people as possible who are not now paying income taxes. In addition, the tax rate applying to the lower and middle class income groups should be raised substantially. Furthermore, it is the writer's opinion that there should be a substantial increase in consumption taxes, even to the enactment of a general sales tax, in order to draw the maximum revenue most quickly and surely from the sources where it is available.

Regardless of tax developments, however, it is obvious that borrowing on a very large scale must be undertaken by the Treasury during the present year. In 1940 direct Government obligations outstanding increased by over \$3,000,000,000 to approximately \$45,000,000,000, while fully guaranteed obligations of the Government amounted to approximately \$6,000,000,000, resulting in an actual national debt of \$51,000,000,000, unless one accepts the fiction of a double system of bookkeeping. It is tragically unfortunate, and a compelling reason why a radical program of taxation should be enacted, that we must undertake vast defense expenditures at a time when Government indebtedness has already become so greatly extended as a consequence of the somewhat futile attempt of the past ten years to enrich our nation by burdening its people with an enormous debt load.

Now, many billion dollars of Government securities must be sold either to individuals, insurance companies, endowed institutions, and savings banks, or commercial banks—or to both groups. What figure the national debt may reach if we maintain our highly theoretical state of non-belligerency cannot be estimated with any accuracy; actual participation in the war would add vastly greater

sums to the total. Even though it probably would be necessary to pay a higher rate of interest on the securities than the prevailing low rate, and to retain the tax-exemption feature and institute extensive selling campaigns, the advantages to be gained by sales to individuals and institutions other than commercial banks would be worth the cost.

The purpose of briefly reviewing the financial conditions, which are outlined in the preceding paragraphs, has been to focus attention upon two aspects of the financial situation which may result in serious consequences to the economic system and to all classes of the public unless financial management during the current year is of the highest order, namely, the national fiscal situation and the surfeit of bank funds and latent purchasing power.

The proposals contained in the recent report submitted to the Congress by the Board of Governors of the Federal Reserve System emphasizes clearly the imperative necessity of strengthening the Board's control over the volume of bank funds and the creation of spendable media. "The present extraordinary situation, states the report, demands that adequate means be provided to combat the dangers of over-expansion of bank credit due to monetary causes. . . . The Federal Reserve System finds itself in the position of being unable effectively to discharge all of its responsibilities. . . . its authority is now inadequate to cope with the present and potential excess reserve problem." Such a frank warning cannot be allowed to be ignored by the Congress.

Proposals that Congress repeal the President's power to issue three billion dollars of greenback currency, and his power to devalue the dollar are eminently sound. Also deserving approval are the suggestions that further monetization of foreign silver be prohibited, and that the power to issue silver certificates against the seigniorage on previous purchases of silver be withdrawn. It is to be regretted that the proposals do not seek to place the stabilization fund under the sole and complete authority of the Board of Governors, instead of merely requesting the present authority to consult with the system's Open Market Committee before using the fund.

From the point of view of bank credit control, in which field probably the greatest dangers lie, it is imperative that Congress grant to the Board of Governor's acting through its Open Market Committee, the power to raise member bank reserve requirements to whatever level is necessary to bring the reserve position of the member banks within the effective control of the Board of Governors. Unless this proposal is accepted, and, as suggested in the report, it should be extended to include the reserves of nonmember banks, there is virtually no way under present legislation to control the expansion of bank credit.

It is not within the power of Congress to undo completely the effects of the financial excesses of the past, but it is certainly incumbent upon that body to take whatever action it can to prevent similar excesses and fantastic financial policies in the future. A first move in this direction would be the complete acceptance and enactment into law, of the proposals submitted by the Board of Governors.

WATROUS H. IRONS.

Conservation of Texas Resources

"It is well to be wise in a great moment."

No more timely topic exists and few if any more important subjects can be found than that of conservation of Texas resources. Conservation is important because in its wider sense it deals with the bases of our modern civilization.

Conservation means first of all a functional appraisal of our resources in the setting created by modern industry, for modern industry supplies the means of utilization and the markets for the products thereof. Therefore, conservation is concerned necessarily with the demands of modern industry upon natural resources, the rate of growth of this demand, its breadth and extent; and conservation is concerned with the means of making natural resources and their products more readily available to modern industry.

It is appropriate to say that conservation in Texas means the optimum use of our natural resources without waste, and it means their use for the benefit of all the people of Texas.

The purpose of this brief article is to call attention to some of the truly important problems of Texas and at the same time to emphasize the present significance and the potential importance of the natural endowment of the State, its natural resources and earth conditions. We have still much to learn about Texas and its possibilities, as is evident when a large chemical concern decides almost out of the clear sky to build a plant costing \$5,000,000 or considerably more, to extract magnesium from sea-water at Freeport on the Gulf Coast.

BREADTH OF THE CONSERVATION PROBLEM

To know the State and its natural resources is, however, not enough, fundamentally necessary though that is. We must know the State and its natural resources in the light of the possibilities for use and development made possible by scientific development and technologic progress. We must go even farther; it is necessary that in the light of the trends of technologic advances that we endeavor to weigh the effects and consequences of future advances upon the Texas scene. Space is not available here to trace some of the consequences of an advancing technology in the past, consequences that not only revolutionized industry, transformed or created individual industries, but changed the course of history and altered or even transformed the fate of nations.

To deal with the large-scale problems that have inevitably risen in the modern world of industry has required not only an advancing technology and continuous exploration of the finding of natural resources adequate to meet the tremendous problems occasioned by the growing demands, but it has wrought the development of organization, industrial organization, commercial organization, on the one hand, and it has enabled organization in general and organizations individually to expand at a tempo never before known.

Thus at one end of the conservation "ladder" are the natural resources; the various rungs of the ladder are comprised of advances in technology occasioning new

potentialities in the world of resources and the development of organization whose function should be to systematize production and commerce and help to widen the markets for the products of industry.

At the other end of the conservation "ladder," however, are the conditioning factors of the social order, exercising an over-all influence on the utilization of natural resources, determining what groups of natural resources are utilized, the rate of use and the like. For instance, until recently the capacity of agriculture in the Western World to produce enough foodstuffs was generally doubted, as witnessed by the writings of Malthus and the neo-Malthusianists. Of the suddenly changed situation, the late Dr. C. F. Marbut wrote in 1934:

In the face of the prediction, persisting until less than half a century ago, from the narrow knowledge-range of the Middle Ages that man was facing starvation, his sudden submergence beneath a surplus of such staples as bread and other grains, fibers, and meats has taken him by surprise and aroused his interest in the reason for the sudden revolution from a crisis of threatened scarcity to a crisis of actual excess of supplies.

And further, Dr. Marbut concluded:

The key to the agricultural crisis is the surplus created by the productivity of modern farming and the social relations which condition it.

Burdensome agricultural surpluses on the one hand and excess plant capacity in industry (until recently) on the other are subjects well enough recognized but the causes thereof have seldom been thoroughly considered.

A final chapter in the study of conservation deals with the present status of resources utilization. And here a variety of opinions and conclusions rise to meet the inquiries. There are those who believe human ingenuity can be depended upon to solve our problems as they arise, that we need not be concerned with how much is left of the endowments of resources nature has placed on the earth's surface or in its upper crust; at the other extreme are those who see dire consequences immediately as the result of erosion, or dust storms, or forest cutting, or large oil production, and the like.

Admittedly, the problem is complex and no full discussion can be attempted in a few pages even if knowledge and insight permitted. The problem of the status of resources utilization is one of far more serious moment than may be grasped at first glance; of serious moment for the community whose flush oil or gas production is gone, and gone forever, or for the industry whose millions in a particular investment are carted off to the ash-heap of obsolete equipment because of a revolutionary technical advance, or for a nation either running low on resources or far behind another and competing nation owing to different resource set-ups.

For instance, it was human ingenuity that invented the Bessemer process and thereby made it possible for England for two or three decades thereafter to continue the lead she had so long held in the iron and steel industry; but it was human ingenuity also and an Englishman, too, who invented the basic process for steel making which made possible the iron and steel industry of Germany,

because this process enabled Germany to use in large-scale operations the phosphatic iron ores which she had only recently acquired from France at the close of the Franco-Prussian war. The invention of the basic process for steel manufacture, made in England, and by an Englishman, has been called the turning point in modern German history. The mathematical researches of Abbe transferred the making of optical glasses from England to Germany. The monopoly in sulphur held so long by Sicily was broken almost overnight by the successful application of the Frasch process.

To come back to the status, which means the economic significance, of natural resources utilization, a true picture of the situation perhaps lies in the golden mean between the two extremes. However, certain facts stand out as manifested in the unexampled use of resources that has been going on now for the past six or seven decades—the tremendous reserves from the world point of view of coal and oil and gas, of iron ore and copper and lead and zinc and tin, and the like, that have been discovered. But these reserves are not uniformly distributed over the earth; they are bunched together as large deposits or accumulations in relatively few places. And their political distribution and control is even less uniform. Such are the demands of modern industry that today every one of the world's mineral resources has become a strategic resource for *some* nation; and no nation today is self-sufficing in its mineral endowment, not even the United States, rich and varied though its mineral resources are. Only a little more than a year ago C. K. Leith in the Anniversary Day Address before the Geological Society of America had this to say:

The self-sufficiency of the United States in raw materials is relative, not absolute. If all our imports were cut off, our industry would indeed return to the "horse and buggy" days. We could build neither an automobile nor a battleship. Our deficiencies are mainly in the so-called ferro-alloy group of minerals used in the steel industry, including chromite, manganese, nickel, tin, and tungsten. There is also a lack of antimony, mercury, certain varieties of mica and graphite, as well as of other minerals. The ramifications of use of all these minerals are so complex in modern industry that the lack of a single one often has far-reaching consequences. It is not merely a question of relinquishing a small percentage of our world trade or of taking an egg from a basket in which there are many more of the same kind. It is more like taking a wheel from a watch or an automobile. Our standard of living is definitely affected, and we are likely to resist the change, even though recognizing the appeal of a policy of isolation as an alternative to war.

A broad perspective of minerals utilization of even the past 50 years shows certain well-defined trends and consequences. As the late Arthur D. Little so aptly wrote in 1924, and the statement is just as applicable today:

Our prosperity in the past has been largely based on cheap land and superabundant raw materials. Today our civilization has developed such complexity that we cannot hope to maintain our position except through the assistance which only science can afford. The laboratory has become a prime mover for the machinery of civilization. . . . Our industries are entering upon a long period of super-competition, the duration of which will in large measure be determined by conditions in Europe or our own relations to them. As foreign markets are restricted, competition at home will be intensified. As the pressure increases, our manufacturers will be forced to rely more and more generally upon the scientific method for the control of materials and processes and to support intensive research as the basis for industrial

development. We may hope to see the stupendous wastes which accompany our present operations minimized, and resources, now neglected, utilized to great advantage. Such abundant metals as beryllium, hafnium, calcium, and magnesium will be utilized. Our wastes in cereal straw will be turned to account. The lumberman will be brought to realize that he is leaving behind or burning up greater values than he markets. Pure iron, bright as silver and little subject to corrosion, will be available for a thousand uses.

As regards the status of our mineral resources about which opinion varies, but concerning which the demand for security is rapidly mounting, the statement by C. K. Leith may be taken as a starting point: "Many of the richer deposits and districts have been exhausted or are on the decline, and the trend is toward the utilization of lower-grade supplies."

As regards oil and gas, a statistical study of the output of the major fields reveals that a very large share of the oil and gas, produced in the period since large-production has dominated the picture, has been supplied by the flush production of great bonanza fields. And everyone realizes that flush production in a bonanza field, no matter how great it is, cannot hold out forever.

So much for the general perspective and comparative interrelations insofar as they can be dealt with in this paper. The problem of conservation and its economic and social implications, not to mention national policies and international relations, leads directly into the broad field of world economics and national economies. And, of all the emerging problems that are coming into the limelight of world-wide attention, none is more significant or more critical than that of the economics of natural resources. Of course, its scope is tremendous, and because it is so tremendous, it is all the more vital to any region of the earth rich in natural resources.

THE CONSERVATION PROBLEM IN TEXAS

And, coming more specifically to the Texas phase of the problem, the aims of conservation may briefly be stated: the objective of conservation in Texas is how to employ Texas resources, *i. e.*, how to use Texas' productive equipment, to the greatest extent possible for the well-being of *all* the people of Texas.

Stated in another way, it means making our resources go farther and extending their benefits wider so as to maintain a progressively higher standard of living in Texas. In short, conservation aims at a better living tomorrow by setting today's house in order. For tomorrow we shall have to learn to make the optimum use of our resources. One objective of presenting at this time the problem of Conservation of Texas Resources is to sum up the more important things which serve as concrete examples of, or as specific needs for, conservational practices, in Texas. These are the items concerned in setting today's house in order.

Far more important, however, is the laying out of a long-range objective by crystallizing attention upon those substantial bases which may serve as the foundation for a workable program of research and development and progress in Texas for the next 20 years, *i. e.*, until the 1960's.

To give point to the laying out of a program for the next 20 years, consider in brief review the great changes

that have come to Texas since 1920. True, many of the changes affecting Texas economic life during the past 20 years have had their origin and have gotten their driving force from outside the State; but their incidence, their impingements, have been upon the Texas scene, vitally affecting every branch of life and enterprise within the State, influencing for good or ill the fortunes of every individual in Texas.

The beginning of, and the only sure basis for, any program concerning the conservation of Texas natural resources is a scientific understanding of the natural endowment of Texas—of its earth conditions and natural resources interpreted with an aim of presenting in broad but clear perspective an understanding of the bigger things embraced in the natural or physical endowment of the State. How important the natural endowment of a country or state is may be illustrated by the observation of, the Swiss economist, Dr. Wm. E. Rappard, that the success of Americans in business is due not to their superior skill but is due mainly to a fortunate combination of essential physical factors in the United States of America. American development represents clearly the adjustments of a people to their environment. The world over, there is a definite relation between the physical wealth of a country and the material well-being of its people.

The bases for such studies and interpretations of the natural endowment are embraced in the physical geography of Texas—a study of areal relations of the characteristics and interdependence of the climate and geographic geology, and of such associated natural conditions and resources on the one hand as topography, soils and forests and grasslands, of water supplies, and of mineral resources and underground water resources on the other.

This science of the physical geography of Texas embraces not only these things but it includes even more—it includes the very significant fact of the geographic orientation of Texas, its setting within the structure of the North American continent and the adjacent water bodies. With the geographic orientation of Texas is associated the advantages of deep-water transportation on the one hand and the problem of freight rate differentials on the other. The costs to Texas directly and to the United States indirectly of burdensome freight rate differentials because of the un-economic practices such rates shelter, constitute a conservation problem of no small magnitude not only to Texas at the present time but to the whole future pattern of development of the State.

TRENDS AND POSSIBILITIES OF THE NEXT TWENTY YEARS

That Texas resources have been exploited, no one can well deny; but can anyone anywhere seek to justify the further dissipation of Texas resources? Of what value is research and study, it may appropriately be asked, if the results thereof cannot be, or are not, used to enhance the values of life? It may not be true that we are living today for the tomorrow that never comes; but it is true that if we are living, tomorrow will come. It is possible, we may ask, to place on a map, in outline, as it were, the main lines of Texas resources utilization for the coming 20 years? Is it possible to do the same thing for specific industries?

In the perspective of the immense and almost revolutionary changes in Texas development during the past 20 years, can we afford not to give thorough and painstaking consideration to the lines of development that appear most likely to be of outstanding importance to Texas in the next two decades?

What, it may well be asked, in the light of the spectacular changes of the past 20 years, will be the status of the Texas cotton industry 20 years hence? Or its oil industry; its natural gas industry; its pulp and paper industry; its heavy chemicals industries; and so on.

Of factors dominant in determining the way of life and progress in Texas during the coming 20 years, I must for the present pass by the outside, or the external factors and forces, important though they necessarily are and will continue to be, in their impingement upon the Texas scene. Here I want to dwell upon and to emphasize some of the factors internal to Texas economy.

The natural endowment of Texas, I have already mentioned; I mention it again because it is so basic and so fundamental, and withal so quiet, so unspectacular, and yet so sure. It is the all-pervading factor in our future.

Besides the natural endowment there is another factor, less tangible perhaps in its operations, but by no means intangible in its importance and consequences; I refer to the social order, a most important conditioning factor in Texas progress, both economically and socially.

So significant is this factor to human progress that may it not be appropriate to begin asking: What sort of social order do we want in Texas in years to come?

But, aside from the natural endowment of Texas and the all-important social order, there are two factors that must also be given careful consideration in arriving at any worthwhile picture of Texas by 1960. These are:

(a) The scientific factors and the technologic equipment which, it is reasonable to believe, will be available during the next two decades; and

(b) What may reasonably be expected as to market demands or trends in demand for Texas products in the next 20 years? Can the Texas market for cotton be regained? If so, how and at what cost? What will be the industrial demands for various kinds of pulp and for paper and plastics from Texas forests? What will be the demands for the ever enlarging Chemical Age for our great non-metallic resources, or for the cellulose products Texas can supply in large volume?

FIELDS FOR CONSIDERATION

There are fields aplenty illustrating the more important fields and problems of conservation of natural resources in Texas; these fields must be seen in their full setting in the American scene as well as in the Texas picture, and generally in the world scene as well. These are industries that employ large numbers of people; should not Texas leadership be interested in the further development of these industries as a means of keeping a larger share of its population profitably employed? These fields include the items in the following list which is aimed to be suggestive rather than complete; these items are:

- (a) Petroleum.
- (b) Natural gas.
- (c) Water supplies, both surface and underground.

(d) Brines, sea-water, salt, sulphur—in short, the vast and until recently the almost wholly unrecognized potentialities in the field of non-metallics available in Texas.

(e) Forests, particularly for pulps and paper, for pressed woods, plastics, etc.

(f) Agricultural raw materials; the wide potentialities of such products as cottonseed oil, or the industrial possibilities of castor oil, and tung oil, to consider only a single group, or the potentialities for the industrial utilization of cellulose to take another group.

(g) Marine resources. First essential of a program of conservation of the marine resources of Texas is a thorough-going scientific study of marine life and the habitats thereof—currents, plankton, life-habits, life-cycles, etc.

POTENTIALITIES OF OIL

Oil as a natural resource is appropriately suitable for supplying an outline of conservational problems and practices:

(a) Here we must have a thorough-going perspective of the critically important position of oil in the international picture and of its strategic position in the American scene. The fundamental position of oil in the economy of Texas should be so well understood that only mention need be made of it here.

(b) The reserves of oil in Texas and the United States should be interpreted from a functional point of view. This means more than detailed data on barrel reserves or of estimates or even shrewd or scientific guesses thereof; it includes an appraisal of how these resources can best be utilized.

(c) Attention can well be paid to conservational measures and practices in oil field development; the quantitative aspects thereof as regards the prevention of physical waste are of sufficient significance to merit special consideration. To date, we may agree that the oil industry has largely centered its attention upon the great bonanza fields whose supplies were rather readily available; we may expect, in the very nature of things, that since these bonanza fields and their flush production are due to decline in the days to come, that more and more attention will necessarily be given oil conservation.

At this point it is appropriate to quote from a broad-gauged oil-man, who is at once a keen-minded geologist and a wide-awake scientist, Wallace E. Pratt:

The trend that is implied in the character of these accomplishments of the Southwest in behalf of the oil-producing is unmistakable. It is the trend toward leadership. And leadership of the oil-producing industry of the United States is the manifest destiny of the Southwest. Given its rich natural endowment in oil resources and its already demonstrated ingenuity and efficiency in exploring and exploiting these resources, the result becomes inevitable. The prestige—and the responsibility—of leadership automatically follow.

To summarize, then, the Southwest has become the nation's principal source of liquid fuels and lubricants. It has attained this commanding position within the last ten years, or so. Potentially it is fitted to continue in the capacity of the storehouse of the nation for liquid fuels and lubricants. The discernible trends indicate that its domination in this respect may become even more complete. In keeping with the responsibility which is imposed

upon it by reason of its natural heritage, the Southwest has pioneered in the development of appropriate technique for finding and producing oil. Its contributions to the art of drilling wells and of exploration for oil have been of such outstanding character that, without them, the industry must already have failed to fulfill its obligations to society. Thus has the Southwest established itself in the position of leadership of the oil-producing industry of the United States.

But leadership entails responsibility and obligations as well as prestige and self-satisfaction. Our present store of oil must be conserved, which can best be accomplished, as Herbert Hoover has reminded us, by efficient utilization. More oil must be found. Discovery technique must be still further perfected. We cannot be content to go on, as we have recently been doing, merely refining our methods of geophysical exploration to detect favorable structures at greater and greater depths, and strengthening and reinforcing our drilling equipment to get our wells down to these more deeply buried structures. In that direction we must soon reach the point of diminishing returns, if we have not already done so. In this situation the Southwest faces one of the obligations of its position of leadership.

Of more immediate concern than improved finding technique, however, is increased skill and efficiency in making available the oil we have already found. The crying needs at the moment are to reduce waste, to conserve reservoir energy, to lower ultimate costs, and to increase ultimate recovery. These objectives cannot be realized by engineers and executives unassisted. A broad campaign of education is essential. We tax, we legislate, we control our oil-producing enterprise in shortsighted, only half-enlightened fashion. The very thinking habits of the public stand across the path to complete accomplishment. We must conceive of ourselves as a community, one of whose important functions it is to supply the nation with fuel and lubricants for transportation and industry. It is our obligation that the supply be adequate for the longest possible time, that the costs be low, and that the return be fair to our own citizenship. We ought literally to think in terms of our oil resources. . . . Our legislators should realize that the Commonwealths they represent have in oil, as a natural resource, one of their most important assets—a wasting asset, incidentally. State officials, taxing authorities, conservation boards, should comprehend that the Southwest is an empire of oil. They should be imbued with a long-range view of governmental policy as applicable to the production of this indispensable commodity.

What is needed, in short, if it is to fulfill to the utmost its responsibility of leadership in the oil-producing industry of the United States, is that the Southwest shall become, in a word, oil minded!

Automatically, as technology advances, new conservational practices will come in; a more and more advanced technique in using our rich energy resources and chemical raw materials is on the way. It will be necessary and it will be feasible to make the quantity of energy resources we are now consuming do many times the work it is now doing.

Some of the conservational measures and practices are outlined as follows:

1. Greater percentage of recovery in the field.
2. Recovery of an increasingly wider range of economic products in the refining of crude oil; and the progressively increased quality of these products in general is of more than casual importance.

At this point, it must be emphasized that both oil and natural gas are to be considered as more than merely energy resources, important though they are as energy materials; both are chemical raw materials, and they are chemical raw materials, *par excellence*. Their importance to Texas as chemical raw materials constitute a potential field the significance of which to Texas it would indeed be difficult to overestimate.

3. More efficient practices in use—making the consumer product go farther: this means better engineering

and chemical practices that, for instance, will give more mileage per gallon of gasoline and better lubrication from and a longer life of a specific lubricant.

The problem of conservation, the question of economics in the development and use of mineral resources, and above all the critical need for a nation-wide policy to deal with them is nowhere better illustrated than in the oil industry. Oil is par excellence an example of a wasting asset, an irreplaceable resource and one whose significance in peace or war it would indeed be difficult to overestimate.

The problem of increasing nationalization of mineral resources is one we are already facing in the United States, and it is a problem in which Texas necessarily is greatly concerned. For a brief statement in regard to the relation of this problem to conservation, I shall quote from an article in *Foreign Affairs* which C. K. Leith wrote fifteen years ago:

"Conservation," too little understood in its practical workings, is popularly assumed to require direct government control, though the correctness of this assumption is open to argument. The thought is growing that mineral deposits, so slowly accumulated by nature, are the heritage of all the people and are not to be exploited exclusively for private gain—or that if the exploitation is left in private hands it must be done in trust for the public.

It is not our purpose here to argue this question, but merely to state it. The problem cannot be solved by ignoring it, as is the disposition in some sections of the mineral industry. To arrive at an intelligent solution will require broad objective study, as free as possible from self-interest, and an understanding of the variety of the inter-relation of the various aspects which the problem assumes. The salient facts are not too many and intricate but that they can become fairly generally understood. A special responsibility rests on the leaders of the mineral industry to contribute their knowledge and ideas toward the formulation of a wise national policy. Otherwise nationalization is likely to take forms determined by surges of political sentiment probably ill-adjusted to the facts of the situation.

IN CONCLUSION

Articles in the following months will deal especially with the oil industry and its potentialities, the newer horizons of industry in Texas and the Southwest, the pulp and paper industry, the greatly increased attention being given Texas' non-metallics and the like. Initiating this series by an article on conservation renders possible the broadening of points of view as regards our natural resources picture which is being given by world leaders a degree of attention and a definite emphasis on a level never before accorded an economic problem.

Some have observed that we are witnessing today a revolution of no small import in world affairs; some are observing that the day of American isolation is a thing of the past. We now perceive that American isolation began to disappear concretely when the Wright brothers not so many years ago made their flying-machine really fly. But of the larger import of the rapidly changing world we are now living in, we perhaps see but dimly. And, in the world of scientific literature, no one has better phrased the period of today than did the late Arthur D. Little:

During the last fifty years science and invention have led us farther and farther from the world that was; deeper and deeper into a new environment. The process of change has been so rapid that readjustment has been difficult. Yet readjust ourselves we must, and prepare for new adjustments. Our dealings with Nature in the past have been by crude and clumsy methods. The chemistry of the laboratory is put to blush by that of the plant cell. We face the problems of the future with a new knowledge of the ultimate structure of matter, derived from radium, atomic spectra, and the X-rays. What has gone before is mere earnest of the future. We may confidently depend on science to provide the foundation for a better social structure, if we can prevail upon ourselves to build thereon in a different frame of mind.

ELMER H. JOHNSON.

Cotton Situation

As pointed out in previous articles in this series, it is impossible to understand the cotton situation in Texas without an understanding of the complex structure and inter-relations of the whole world textile industry; that the manufacturing part of the industry, especially that portion based on natural fibers, and the agricultural regions which produce the raw materials whether cotton, wool, jute, silk, or linen are highly concentrated and specialized and, therefore, vitally dependent on foreign markets.*

The cotton industry is the dominant factor in the world of textiles, both in raw material production and in textile manufacturing. The world normally consumes now about eighteen billion pounds of the major finer textile fibers, and of this cotton furnishes about 13.4 billion; wool, 2 billion (scoured basis); synthetics, 2 billion; linen flax, 500 million; and silk, 100 million pounds. What happens to cotton is of vital concern to all the others, for the cotton industry tends either directly or indirectly to dominate the price structure for the industry as a whole.

The cotton industry itself is highly competitive and accordingly exceedingly dynamic. Because the United

States held so dominant a position in world cotton production for more than 100 years, some came to believe that this country had a more or less natural monopoly of the business. The history of the last few years has completely exploded that theory. During the five years ending 1928-29 cotton production in the United States averaged 15,268,000 bales or 57.7 per cent of world production of commercial cotton, and foreign production about 11,200,000 bales. At the present time the positions of the United States and foreign countries have about been reversed; the best available estimates for this year's production indicate that foreign production of cotton will be nearly 18 million bales or 59 per cent of world production, and United States production about 12,600,000 bales. The factors involved in these changes in areas of world cotton production can best be explained after we have gotten a picture and understanding of the relocations which have taken place in the world's cotton textile industry in recent years.

Shifts in the centers of cotton manufacturing have been even more pronounced since 1914 than shifts in areas of cotton production. The major shifts have been from Europe to Asia, New England to the South in the United States, and the developments in South and Central

*See TEXAS BUSINESS REVIEW for June and November, 1940.

American countries. The extent of this change is indicated by the fact that in 1913 Japan had 2,300,000 cotton spinning spindles, and in 1939, 11,502,000, an increase of 400 per cent. The entire Orient, including Japan, China, and India, had only 9,300,000 spindles in 1913 and consumed 3,470,000 bales; whereas, in 1938 these three countries had 26,500,000 spindles and consumed in 1937, 9,200,000 bales of cotton.

In 1913, United Kingdom had 55,653,000 cotton spinning spindles, and in 1939 it had only 36,322,000, a decrease of 34.7 per cent. In 1913 Brazil had 1,200,000 spindles, and 2,765,000 in 1939. New England had 17,311,000 spindles in 1913, the cotton-growing states, 12,227,000; and in 1939 New England had only 5,279,000, whereas, the cotton-growing states had 17,641,000 spindles.

The very pronounced relocation of the cotton manufacturing industry is of major importance in changing the relative advantages of surplus cotton producing areas in supplying world markets. It will be necessary for the United States to work out a more attractive exchange of goods with countries where these new markets are located than foreign cotton producers are able to make if it wishes to capture and hold these markets for United States cotton growers. Since the United States is now a predominantly industrial country with national policies being formulated largely by those seeking to import raw materials and export finished manufactures, cotton growers in the United States are not in as advantageous position to export raw cotton to Europe or Japan as farmers in countries like Brazil, or the Argentine, where economic conditions and national policies favor the exchange of raw cotton for manufactured goods.

Cotton is playing a very important role in the great international struggle to control sources of raw materials and markets. The concentration of cotton manufacturing in Europe and other non-cotton growing areas coupled with a multiplicity of barriers to trade have made it not only highly desirable but even necessary for those countries to stimulate cotton growing in their own colonies and in all independent states willing to accept manufactured goods in payment for raw cotton. In accomplishing their objectives these countries have found it advisable to encourage and even direct purchases of raw cotton in countries like Brazil and the Argentine which are willing to take manufactured goods in payment for raw cotton. Moreover, cotton is a cash crop with an assured market where it can be traded goods for goods, and countries which can grow it are finding cotton production and sale the best and surest way to get foreign exchange with which to service their foreign debts and buy desired manufactures, especially after drastic devaluations of their currencies which came with the depression. The result has been a very pronounced stimulation of cotton growing in foreign countries, as has already been shown.

The far-reaching shifts in centers of world production and manufacture of cotton since the World War are in themselves calculated to cause painful adjustments in the world cotton trade. Moreover, the World War disorganized world channels of trade and destroyed the means of many nations to pay for raw materials neces-

sary to supply their industries, for international trade is essentially barter of goods and services. Prior to 1914 Europe paid for large supplies of American cotton with the interest we had to pay to service our debts there. This situation was so completely changed by 1928 that the United States was the world's greatest creditor nation. Europe is now obligated to pay the United States huge sums in interest which can be done only by the sale to us of goods and services. It is difficult to see how the United States can recover lost cotton markets in Europe unless it sees fit to permit more European manufactured goods to enter the country on favorable trading terms.

Even the rapidly growing market in the Orient and especially in Japan will be difficult for the United States cotton growers to hold because Japan finds it difficult to trade goods for dollars to pay for the cotton it wishes to buy, especially since the price of silk has declined so drastically under competition with rayon.

The countries formerly so vitally dependent on the United States for raw cotton determined to lessen, if not entirely eliminate, this dependence on us by increasing cotton production in their colonies and in countries anxious to trade raw cotton for Europe's finished manufactures. In addition to this, these nations have felt it necessary to subsidize increased production of synthetic fibers as a substitute for cotton.

The net result of all the operating forces and factors to date is that since 1932 foreign countries have increased cotton production almost 100 per cent, and are now producing as much cotton as foreign countries are expected to consume during the next several years. Most foreign cotton manufacturing countries are now in position to trade their manufactured goods for raw cotton outside the United States. Texas cotton, if it is to find much favor in foreign markets in the future, must not only be offered at a competitive price, but under more favorable trade relations.

Just how significant is the cotton industry of the United States? Is the export of raw cotton of sufficient importance in our national economy to deserve strong national policies to restore? The importance of the cotton industry of the United States exceeds that of any other country both in volume of manufactures and production of raw cotton. The United States, with about 26,000,000 cotton spinning spindles, ranks next to Great Britain in numbers of spinning spindles and has more than twice as many spindles as either Germany or Japan, the next most important countries. The United States manufactures nearly one-fourth of all the cotton manufactured in the world, and more than twice as much as Great Britain, its nearest competitor. The value of cotton manufactures in the United States in 1937 was \$1,273,000,000; the value added by manufacturing was \$569,000,000; and the amount paid out for wages alone was \$324,000,000.

During the five years prior to the depression in 1929, the United States produced about 57 per cent of all the cotton grown in the world, and the farm value of the crop in 1929 was \$1,339,000,000; and this was 25.7 per cent of the value of all crops (not including livestock and livestock products) grown in the United States that year. There are only a little over six million farmers in the entire United States, and about two million

of these, or 31.5 per cent, grow cotton. Certainly if agriculture in the United States is of sufficient importance to warrant framing national policies to preserve it, then the necessities of the major enterprise in that agriculture cannot be neglected.

The cotton industry of the United States is essentially a Southern industry, a regional industry which is greatly to its disadvantage in framing national policies. The South has 73.1 per cent of all the cotton spinning spindles in the United States and manufactures about 85 per cent of all the cotton manufactured in this country. The South grows all the cotton produced in the United States. The cotton economy of the United States is thus an economy of the South, and that economy, so far, has been moulded, energized, and directed by the economy of cotton production. Cotton is the major farm enterprise in one of the greatest, most specialized agricultural regions in the world. Prior to the depression cotton and cottonseed furnished over 60 per cent of the farm cash income in the cotton belt, a region highly dependent on agriculture.

In order to get an adequate conception of the problems confronting the South, it is necessary to point out that cotton growing in the South, and more especially in the Southwest, was not only a cotton economy but the very heart of the world cotton industry and cotton economy down to 1929. During the five years prior to the depression the average annual exports of cotton from the United

States were 8,514,000 running bales, which was 56.3 per cent of the United States' total production, and more than 60 per cent of all raw cotton entering into world trade. In the Southwest, the percentage of production going to export was very much higher. Prior to 1929, e.g., more than 90 per cent of Texas production of cotton found markets abroad. The fact of major importance here is that the cotton economy of the United States, and particularly that of the South and Southwest, was to a very large extent and still is vitally connected with and dependent on the cotton economy of the world.

Technological developments, coupled with national and international policies, are seemingly destined to force a drastic decline in the raw cotton economy of the South and a more pronounced development of industry. The shift from a dominant cotton growing economy toward an industrial economy centered partly around textile and allied industries may be to the advantage of the South in the long run, but in the meantime must of necessity cause shifts in population and economic values of far-reaching consequence. The situation demands the best thought and effort of the nation but more particularly of those of the South and Southwest.

It cannot be over-emphasized in this connection that the cotton production business of the South and hence its agriculture has been built up on the basis of an export market for cotton.

A. B. Cox.

COTTON BALANCE SHEET FOR THE UNITED STATES AS OF JANUARY 1

(In Thousands of Running Bales Except as Noted)

	Carryover Aug. 1	Imports to Jan. 1*	Government Estimate as of		Consump- tion to Jan. 1	Exports to Jan. 1		Balance Jan. 1
			Dec. 1*	Total		Total	Total	
1931-1932	6,369	34	16,918	23,321	2,191	4,037	6,228	17,093
1932-1933	9,682	38	12,727	22,447	2,342	4,264	6,588	15,859
1933-1934	8,176	55	13,177	21,408	2,415	4,180	6,595	14,813
1934-1935	7,746	49	9,731	17,526	2,134	2,399	4,533	12,993
1935-1936	7,138	42	10,734	17,914	2,424	3,461	5,885	12,029
1936-1937	5,397	57	12,407	17,861	2,897	3,177	6,074	11,787
1937-1938	4,498	40	18,746	23,284	2,644	3,185	5,836	17,448
1938-1939	11,533	65	12,008	23,606	2,799	1,902	4,701	18,905
1939-1940	13,033	57	11,792	24,882	3,310	3,134	6,444	18,438
1940-1941	10,596	48	12,686	23,330	3,584	601	4,185	19,145

*In 500-pound Bales.
The Cotton Year Begins August 1.

CEMENT

(In Thousands of Barrels)

	Dec. 1940	Dec. 1939	Nov. 1940	Year 1940	Year 1939
Texas Plants					
Production	602	547	648	7,374	7,281
Shipments	592	518	563	7,383	7,149
Stocks	892	911	892	---	---
United States					
Production	11,147	9,488	12,689	130,349	131,378
Shipments	8,192	6,772	10,329	130,404	122,618
Stocks	23,305	23,495	20,369	---	---
Capacity Operated	50.9%	43.3%	59.9%	---	---

NOTE: FROM U.S. Department of Interior, Bureau of Mines.

PERCENTAGE CHANGES IN CONSUMPTION OF ELECTRIC POWER

	Dec. 1940 from Dec., 1939	Dec., 1940 from Nov., 1940	Year 1940 from Year 1939
Commercial	+14.7	- 0.9	+ 8.2
Industrial	- 0.8	- 2.1	- 7.1
Residential	+12.7	+ 4.3	+ 5.5
All Other	+ 3.1	- 3.4	+ 5.9
Total	+ 5.8	- 0.1	+ 0.2

NOTE: Prepared from reports from 11 electric power companies to the Bureau of Business Research.

EMPLOYMENT AND PAY ROLLS IN TEXAS

December, 1940

MANUFACTURING	Estimated Number of Workers Employed*	Percentage Change		Estimated Amount of Weekly Pay Roll	Percentage Change	
		from November, 1940	from December 1939		from November 1940	from December 1939
All Manufacturing Industries	140,419	+ 0.1	+ 7.9	\$2,849,785	+ 5.2	+ 7.6
<i>Food Products</i>						
Baking.....	6,580	- 1.5	+ 1.3	142,273	- 1.1	+ 1.1
Carbonated Beverages.....	2,839	- 3.2	+ 9.3	63,596	+ 0.3	+ 8.7
Confectionery.....	874	+ 2.4	- 3.0	8,476	+ 4.1	- 22.9
Flour Milling.....	1,778	- 0.8	+ 17.4	36,045	- 1.2	+ 14.9
Ice Cream.....	842	- 7.5	+ 7.8	16,105	+ 1.5	+ 18.3
Meat Packing.....	4,866	+ 8.4	+ 24.2	111,715	+ 13.7	+ 32.9
<i>Textiles</i>						
Cotton Textile Mills.....	6,741	+ 2.1	+ 9.4	107,352	+ 7.2	+ 24.8
Men's Work Clothing.....	3,953	+ 5.8	+ 12.9	44,676	+ 27.6	+ 28.4
<i>Forest Products</i>						
Furniture.....	1,890	+ 1.7	+ 10.6	55,640	+ 12.8	+ 39.5
Planing Mills.....	2,215	+ 3.1	+ 12.2	38,982	(1)	+ 4.6
Saw Mills.....	16,682	- 0.5	+ 14.4	219,164	- 2.6	+ 18.2
Paper Products.....	(2)	+ 4.1	+ 0.3	(3)	+ 13.2	+ 7.2
<i>Printing and Publishing</i>						
Commercial Printing.....	1,881	- 4.7	- 14.8	47,633	+ 7.9	- 5.4
Newspaper Publishing.....	4,690	+ 3.8	- 1.9	134,210	+ 8.3	+ 2.6
<i>Chemical Products</i>						
Cotton Oil Mills.....	4,068	+ 0.1	+ 49.8	63,770	+ 4.4	+ 28.2
Petroleum Refining.....	20,328	- 0.6	- 0.4	694,231	+ 4.7	+ 3.9
<i>Stone and Clay Products</i>						
Brick and Tile.....	2,076	+ 0.1	+ 28.7	27,184	+ 3.6	+ 27.6
Cement.....	963	- 10.7	+ 8.0	27,146	- 5.8	+ 18.5
<i>Iron and Steel Products</i>						
Foundries and Machine Shops.....	10,789	- 2.4	+ 3.8	288,863	+ 10.5	- 7.9
Structural and Ornamental Iron.....	2,281	+ 1.6	+ 17.9	47,219	+ 6.4	+ 28.3
NONMANUFACTURING						
Crude Petroleum Production.....	30,983	+ 0.2	- 0.8	968,459	- 0.7	- 1.0
Quarrying.....	(4)	+ 0.2	- 4.5	(5)	+ 6.0	+ 5.9
Public Utilities.....	(6)	+ 0.9	+ 3.4	(7)	+ 0.4	+ 9.7
Retail Trade.....	245,589	+ 20.0	+ 10.2	4,006,456	+ 17.6	+ 10.3
Wholesale Trade.....	59,776	- 2.7	+ 0.7	1,983,442	+ 1.7	+ 18.8
Dyeing and Cleaning.....	2,356	- 1.8	- 0.9	34,805	- 3.4	- 1.9
Hotels.....	14,019	- 1.4	- 3.0	171,643	- 0.7	+ 8.4
Power Laundries.....	9,812	+ 1.7	+ 6.9	125,987	+ 2.6	+ 13.8

CHANGES IN EMPLOYMENT AND PAY ROLLS IN SELECTED CITIES

City	Employment Percentage Change		Pay Rolls Percentage Change		Employment Percentage Change		Pay Rolls Percentage Change	
	Nov., 1940	Dec., 1939	Nov., 1940	Dec., 1939	Nov., 1940	Dec., 1939	Nov., 1940	Dec., 1939
Abilene	+ 3.1	- 16.3	+ 5.3	+ 8.6	+ 4.4	- 14.3	+ 13.5	- 4.7
Amarillo	+ 4.4	+ 7.2	+ 5.9	+ 16.6	+ 0.7	+ 1.4	+ 4.8	+ 4.1
Austin	+ 0.5	+ 7.0	+ 5.4	+ 3.7	- 1.0	- 3.3	+ 3.5	+ 3.8
Beaumont	+ 1.2	+ 6.6	+ 3.3	+ 15.2	+ 4.8	+ 4.3	+ 6.4	+ 8.5
Dallas	+ 9.5	+ 14.1	+ 4.4	+ 20.2	+ 0.6	+ 24.5	+ 2.7	+ 53.3
El Paso	+ 7.2	+ 14.2	+ 12.6	+ 27.3	- 5.0	- 5.3	+ 3.2	+ 7.0
Fort Worth	+ 4.5	+ 17.9	+ 10.3	+ 21.9	- 1.2	- 2.5	- 3.2	+ 2.1
Galveston	+ 4.4	- 14.3	+ 13.5	- 4.7	+ 3.0	+ 5.4	+ 4.5	+ 9.9
Houston	+ 0.7	+ 1.4	+ 4.8	+ 4.1				
Port Arthur	- 1.0	- 3.3	+ 3.5	+ 3.8				
San Antonio	+ 4.8	+ 4.3	+ 6.4	+ 8.5				
Sherman	+ 0.6	+ 24.5	+ 2.7	+ 53.3				
Waco	- 5.0	- 5.3	+ 3.2	+ 7.0				
Wichita Falls	- 1.2	- 2.5	- 3.2	+ 2.1				
STATE	+ 3.0	+ 5.4	+ 4.5	+ 9.9				

ESTIMATED NUMBER OF EMPLOYEES IN NONAGRICULTURAL BUSINESS AND GOVERNMENT ESTABLISHMENTS⁽⁸⁾

1940	
January	941,000
February	944,000
March	962,000
April	954,000
May	967,000
June	963,000
July	960,000
August	965,000
September	983,000
October	997,000
November	1,011,000
December	1,033,000 ⁽⁹⁾

*Does not include proprietors, firm members, officers of corporations, or other principal executives. Factory employment excludes also office, sales, technical, and professional personnel. These figures are subject to revision.

(1)Not available.

(2)Less than 1/20 of one per cent.

(3)Not including self-employed persons, casual workers, or domestic servants, and exclusive of military and maritime personnel. These figures are furnished by the Bureau of Labor Statistics, U.S. Department of Labor.

(4)Preliminary.

Prepared from reports from representative Texas establishments to the Bureau of Business Research cooperating with the United States Bureau of Labor Statistics.

DECEMBER RETAIL SALES IN INDEPENDENT STORES IN TEXAS

	Number of Firms Reporting	Percentage Change in Dollar Sales		
		Dec., 1940 from Dec., 1939	Dec., 1940 from Nov., 1940	Year 1940 from Year 1939
TOTAL TEXAS	954	+ 3.9	+ 29.5	+ 6.0
TEXAS STORES GROUPED BY PRODUCING AREAS:				
District 1-N	59	+ 1.5	+ 28.9	+ 7.9
Amarillo	11	+ 9.5	+ 64.8	+ 6.6
Canyon	6	- 1.7	+ 30.8	+ 7.7
Plainview	14	+ 4.2	+ 11.2	+ 11.1
All Others	28	- 9.8	+ 0.8	+ 8.4
District 1-S	21	- 9.7	+ 9.8	+ 1.9
Big Spring	5	- 15.2	+ 4.0	- 12.3
Lubbock	6	- 11.5	+ 12.8	+ 7.8
All Others	10	+ 8.0	+ 5.8	+ 9.2
District 2	77	+ 1.6	+ 23.0	+ 2.6
Abilene	12	+ 5.0	+ 50.8	- 1.1
Vernon	5	+ 0.7	+ 3.7	+ 6.6
Wichita Falls	12	+ 5.3	+ 36.5	+ 3.3
All Others	48	- 4.2	- 0.5	+ 3.8
District 3	32	+ 27.0	+ 16.2	+ 6.2
Breckenridge	5	- 1.4	+ 31.0	- 4.7
All Others	27	+ 30.3	+ 15.1	+ 9.0
District 4	226	+ 2.4	+ 37.0	+ 5.4
Cleburne	5	+ 5.1	+ 58.5	+ 5.5
Corsicana	7	+ 4.2	+ 11.8	+ 3.9
Dallas	38	+ 2.8	+ 44.1	+ 5.3
Denison	7	+ 11.1	+ 9.3	+ 16.3
Fort Worth	38	+ 2.3	+ 34.4	+ 5.5
Gainesville	5	+ 2.3	+ 0.8	+ 3.8
Sherman	5	+ 9.2	+ 64.9	+ 9.8
Temple	10	+ 0.9	+ 20.9	+ 1.0
Waco	29	+ 6.9	+ 36.6	+ 6.4
All Others	82	- 7.4	+ 0.2	+ 4.4
District 5	104	+ 9.3	+ 20.9	+ 8.6
Bryan	5	- 14.0	+ 28.5	+ 0.6
Henderson	5	+ 13.9	+ 13.7	+ 15.6
Marshall	8	+ 7.3	+ 56.8	+ 8.5
Palestine	5	- 0.3	- 5.9	+ 5.6
Texarkana	5	+ 41.3	+ 10.2	+ 1.8
Tyler	11	+ 4.2	+ 45.0	+ 3.7
All Others	65	+ 10.1	+ 13.7	+ 12.1
District 6	25	+ 21.4	+ 16.5	+ 9.3
El Paso	11	+ 23.8	+ 18.5	+ 9.6
All Others	14	+ 3.5	+ 1.6	+ 1.2
District 7	58	+ 2.8	+ 26.9	+ 2.2
Brady	7	+ 12.8	+ 43.4	- 7.5
San Angelo	13	+ 13.1	+ 38.0	+ 6.0
All Others	38	- 9.7	+ 12.5	- 3.7
District 8	176	+ 6.0	+ 57.3	+ 18.9
Austin	19	+ 1.4	+ 49.7	- 1.4
Corpus Christi	12	+ 1.8	+ 16.7	+ 2.0
Lockhart	7	- 1.7	+ 5.1	+ 14.0
San Antonio	51	+ 7.4	+ 32.7	+ 10.4
San Marcos	7	+ 18.3	+ 5.3	+ 10.0
All Others	80	+ 6.5	+ 11.5	+ 2.2
District 9	125	+ 2.3	+ 30.2	+ 6.4
Beaumont	18	+ 3.9	+ 41.0	+ 9.3
Galveston	13	+ 12.5	+ 15.4	+ 7.1
Houston	48	+ 2.0	+ 33.6	+ 5.0
Port Arthur	11	- 7.7	+ 27.3	+ 7.2
All Others	35	+ 5.2	+ 0.9	+ 16.0
District 10	55	- 3.0	- 0.3	- 0.8
Brownsville	7	+ 2.2	+ 14.7	+ 1.4
Harlingen	7	- 17.6	- 10.9	- 10.8
All Others	41	+ 3.5	+ 2.2	+ 1.7

NOTE: Prepared from reports of independent retail stores to the Bureau of Business Research cooperating with the U.S. Bureau of the Census.

PURCHASES OF SAVINGS BONDS

	Dec., 1940	Dec., 1939	Year 1940	Year 1939
Abilene	2,663	25,819	249,867	239,045
Amarillo	45,619	31,613	401,944	†
Austin	78,094	62,681	693,412	430,331
Beaumont	76,594	68,925	559,924	501,452
Big Spring	9,206	2,381	105,882	76,613
Brownsville	6,206	7,125	89,401	105,976
Corpus Christi	23,119*	†	†	†
Dallas	348,825	320,419	2,754,245	2,616,150
Del Rio	1,744	675	17,702	10,183
Denison	12,769	17,756	142,477	123,018
Denton	1,151	7,763	†	54,959*
El Paso	80,044	90,675	1,222,127	841,744
Fort Worth	117,806	186,169	1,011,203	1,417,259
Galveston	62,513	57,263	560,363	428,569
Gladewater	2,475	4,613	78,806	92,459
Harlingen	5,794	8,427	62,847	91,885
Kenedy	131	3,094	11,907	10,332
Kilgore	11,981	13,537	111,770	114,694
Longview	10,706	10,594	284,251	246,225
McAllen	5,269	7,388	73,108	64,539
Marshall	24,750	32,119	180,694	93,114
Odessa	1,519	356	40,969*	†
Palestine	9,019	14,719	†	148,163*
Pampa	6,075	8,456	†	52,970*
Plainview	2,588	281	54,396	60,733
Port Arthur	24,956	21,431	303,175	258,414
San Angelo	27,188	16,875	182,044	167,494
San Antonio	219,113	174,075	1,822,708	1,602,714
Sherman	10,219	5,812	101,870	83,514
Tyler	35,119	55,631	335,737	293,569
Waco	82,088	82,088	668,267	567,600
Wichita Falls	84,281	35,663	517,446	403,252
TOTAL	1,406,505	1,374,423	12,195,629	10,940,878

*Not included in total.
†Not available.

TEXAS CHARTERS

	Dec., 1940	Dec., 1939	Nov., 1940	Year 1940	Year 1939
Domestic Corporations					
Capitalization*	\$1,392	\$2,532	\$790	\$24,138	\$22,445
Number	81	114	64	1,282	1,419
Classification of new corporations:					
Banking-Finance	4	6	4	43	43
Manufacturing	16	15	10	230	257
Merchandising	15	27	12	346	331
Oil	7	17	5	168	259
Public Service	3	0	1	21	10
Real Estate-					
Building	9	18	7	119	162
Transportation	8	5	4	64	45
All Others	18	26	21	292	312
Number capitalized at less than \$5,000	27	60	34	533	622
Number capitalized at \$100.00 or more	2	2	2	33	43
Foreign Corporations					
(Number)	35	23	24	267	312

*In thousands.

NOTE: Compiled from records of the Secretary of State.

DECEMBER RETAIL SALES OF INDEPENDENT STORES IN TEXAS

	Number of Firms Reporting	Percentage Dec., 1940 from Dec., 1939	Change Dec., 1940 from Nov., 1940	Percentage Change Year 1940 from Year 1939
TEXAS	954	+ 3.9	+ 29.5	+ 6.0
STORES GROUPED BY LINE OF GOODS CARRIED:				
APPAREL	101	+ 3.2	+ 45.0	+ 4.9
Family Clothing Stores	20	+ 3.2	+ 47.1	+ 1.7
Men's and Boys' Clothing Stores	35	+ 3.9	+ 60.7	+ 5.6
Shoe Stores	18	+ 3.0	+ 31.0	+ 4.5
Women's Specialty Shops	28	+ 2.7	+ 36.6	+ 5.1
AUTOMOTIVE*	58	+ 7.0	- 0.1	+ 13.0
Motor Vehicle Dealers	56	+ 6.5	- 1.8	+ 12.7
COUNTRY GENERAL	105	+ 7.7	+ 8.8	+ 6.3
DEPARTMENT STORES	52	+ 3.1	+ 47.0	+ 5.1
DRUG STORES	113	+ 9.0	+ 44.5	+ 3.8
DRY GOODS AND GENERAL MERCHANDISE	20	+ 0.8	+ 41.3	+ 0.3
FILLING STATIONS	40	+ 6.5	- 6.4	- 1.8
FLORISTS	23	+ 5.0	+ 81.9	+ 3.4
FOOD*	168	- 2.7	- 0.3	- 0.7
Grocery Stores	53	- 0.9	- 0.2	+ 0.6
Grocery and Meat Stores	111	- 3.3	- 0.4	- 1.2
FURNITURE AND HOUSEHOLD*	42	+ 6.5	+ 40.8	+ 5.3
Furniture Stores	33	+ 4.3	+ 36.2	+ 4.9
JEWELRY	28	+ 16.0	+ 199.1	+ 8.0
LUMBER, BUILDING, AND HARDWARE*	171	+ 3.2	- 10.9	+ 3.0
Farm Implement Dealers	8	- 13.5	- 26.1	+ 10.1
Hardware Stores	53	+ 8.3	+ 11.8	+ 5.9
Lumber and Building Material Dealers	108	+ 2.3	- 18.0	+ 2.5
RESTAURANTS	19	- 1.2	+ 5.3	- 1.8
ALL OTHER STORES	14	- 10.9	+ 15.3	+ 0.6
TEXAS STORES GROUPED ACCORDING TO POPULATION OF CITY:				
All Stores in Cities of...				
Over 100,000 Population	187	+ 4.4	+ 36.8	+ 6.6
50,000-100,000 Population	90	+ 3.4	+ 37.2	+ 5.4
2,500-50,000 Population	391	+ 3.2	+ 18.8	+ 5.2
Less than 2,500 Population	286	+ 3.7	+ 5.8	+ 5.3

*Group total includes kinds of business other than the classifications listed.

Notes: Prepared from reports of independent retail stores to the Bureau of Business Research cooperating with the United States Bureau of the Census.

PETROLEUM

Daily Average Production

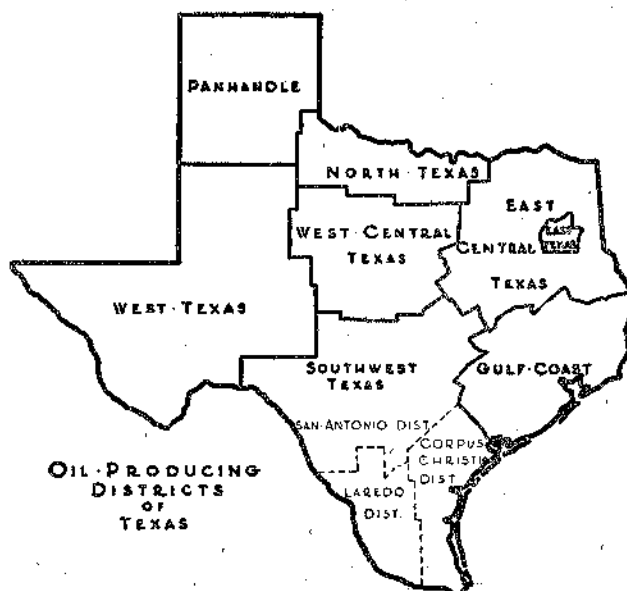
(In Barrels)

	Dec., 1940	Dec., 1939	Nov., 1940
Coastal Texas*	237,000	251,200	236,950
East Central Texas	81,550	92,900	77,500
East Texas	356,600	469,000	373,800
North Texas	106,050	91,650	110,800
Panhandle	77,950	79,950	65,100
Southwest Texas	189,900	232,800	200,200
West Central Texas	30,950	31,950	30,400
West Texas	209,050	258,900	217,750
STATE	1,289,050	1,508,350	1,312,500
UNITED STATES	3,549,550	3,776,500	3,565,450
Imports	270,536	132,464	204,929

*Includes Conroe.

Note: From American Petroleum Institute.

See accompanying map showing the oil producing districts of Texas.



Gasoline sales as indicated by taxes collected by the State Comptroller were: November, 1940, 113,448,000 gallons; November, 1939, 104,582,000 gallons; October, 1940, 122,431,000 gallons.

POSTAL RECEIPTS

	Dec. 1940	Dec. 1939	Nov. 1940	Year 1940	Year 1939
Abilene	25,181	22,242	17,199	218,604	213,330
Amarillo	47,412	45,169	29,311	416,946	385,434
Austin	88,470	76,134	65,491	860,027	830,607
Beaumont	40,010	36,594	25,175	335,325	322,108
Big Spring	9,336	9,416	5,882	76,682	72,911
Brownsville	9,703	8,553	5,078	73,726	78,543
Coleman	3,716	2,831	2,319	†	†
Childress	5,680	4,907	2,546	34,414*	†
Corpus Christi	45,742	36,284	29,655	362,563	309,758
Corsicana	9,431	8,618	6,851	71,139	69,393
Dallas	498,521	469,400	401,892	4,597,769	4,400,235
Del Rio	5,484	5,393	3,356	49,487	50,677
Denison	10,291	8,566	6,181	75,777	68,158
Denton	10,265	9,672	6,826	92,188	87,255
El Paso	82,244	75,888	49,492	590,295	561,784
Fort Worth	214,432	197,123	159,587	1,824,023	1,738,598
Galveston	46,140	42,254	27,682	381,762	361,089
Gladewater	4,354	3,898	2,494	34,018	33,531
Graham	3,677	3,330	2,150	29,597	28,814
Harlingen	9,862	8,292	6,263	77,914	72,034
Jacksonville	3,920	4,099	3,188	38,237	39,579
Kenedy	1,563	1,562	1,115	15,560	15,057
Kilgore	8,888	8,117	5,229	73,113	72,063
Longview	13,774	10,619	8,393	114,709	110,506
Lubbock	27,624	23,435	18,046	237,615	220,817
Lufkin	6,577	6,060	3,987	57,560	55,055
McAllen	8,279	6,751	4,426	64,729	59,369
Marshall	10,362	8,639	6,133	80,042	74,615
Odessa	8,535	8,087	5,460	77,115	68,580
Palestine	7,508	6,726	4,690	66,193	64,147
Pampa	10,698	10,040	6,238	86,527	78,586
Paris	8,366	8,678	5,970	†	74,130*
Plainview	6,352	5,237	4,096	50,283	48,807
Port Arthur	25,354	24,473	13,815	176,029	166,987
San Angelo	18,324	17,353	11,779	148,766	144,424
San Antonio	203,790	174,296	131,556	1,620,261	1,490,604
Sherman	11,793	11,427	6,703	94,016	92,649
Snyder	2,018	1,901	1,374	17,758	17,230
Sweetwater	6,697	6,248	4,888	61,617	59,889
Tyler	22,032	20,559	15,694	195,131	191,858
Waco	44,103	41,910	34,392	412,643	403,193
Wichita Falls	34,627	32,468	21,970	296,360	279,046
TOTAL	1,661,135	1,513,249	1,174,572	14,152,106	13,437,320

*Not included in total.

†Not available.

NOTE: Compiled from reports from Texas chambers of commerce to the Bureau of Business Research.

LUMBER

(In Board Feet)

	Dec., 1940	Dec., 1939	Nov., 1940
Southern Pine Mills:			
Average Weekly Production per unit	304,935	285,566	334,101
Average Weekly Shipments per unit	319,236	251,321	388,423
Average Unfilled Orders per unit, end of month	965,299	619,613	940,385

NOTE: From Southern Pine Association.

TEXAS COMMERCIAL FAILURES

	Dec., 1940	Dec., 1939	Nov., 1940*	Year 1940	Year 1939*
Number	19	17	26	287	299
Liabilities†	\$179	\$462	\$298	\$6,952	\$4,675
Assets†	128	163	290	6,178	3,432
Average Liabilities per Failure†	9	27	11	24	16

NOTE: From Dun and Bradstreet, Inc.

*Revised.

†In thousands.

BUILDING PERMITS

	Dec. 1940	Dec. 1939	Nov. 1940	Year 1940	Year 1939
Abilene	\$ 74,855	\$ 16,980	\$ 37,425	\$ 672,079	\$ 577,655
Amarillo	244,114	106,865	165,820	2,589,856	2,569,826
Austin	646,754	275,898	737,343	7,362,969	7,178,716
Beaumont	83,361	85,401	163,152	1,540,030	1,714,345
Big Spring	16,575	6,975	36,520	296,381	304,341
Brownsville	154,612	33,902	12,703	477,744	691,775
Coleman	8,400*	‡	9,750*	239,130*	‡
Corpus Christi	247,070	178,204	280,746	8,099,857	5,757,378
Corsicana	3,331	11,035	18,975	169,570	199,171
Dallas	2,959,276	623,040	686,582	16,220,813	12,627,148
Del Rio	1,660	5,150	9,240	96,620	113,857
Denton	5,425	9,200	19,700	313,093	312,415
El Paso	134,050	161,205	131,899	2,957,179	2,573,035
Fort Worth	186,681	403,092	407,557	4,850,672	7,116,824
Galveston	40,958	107,071	231,314	2,083,922	1,436,008
Gladewater	1,060	0	3,325	40,069	57,266
Graham	2,952	2,975	3,510	90,987*	‡
Harlingen	45,760	26,599	56,220	401,041	242,135
Houston	3,155,628	1,940,045	1,083,580	24,073,888	25,574,085
Jacksonville	1,100	2,700	6,485	145,297	110,338
Kenedy	450	0	320	‡	‡
Longview	20,150	45,452	111,720	464,242	341,913
Lubbock	398,776	844,804	149,445	4,429,857	3,484,623
McAllen	8,285	1,910	16,585	325,303	388,110
Marshall	25,917	16,666	18,219	360,137	562,586
Midland	50,325	23,815	15,775	‡	‡
Palestine	40,762	2,489	16,289	216,896	158,525
Pampa	63,550	29,975	19,100	718,336	297,705
Paris	6,865*	3,175*	‡	‡	125,238*
Plainview	3,000	1,400	900	96,876	83,654
Port Arthur	49,852	69,821	71,617	1,127,851	1,143,917
San Angelo	71,134	10,905	73,601	1,150,734	417,679
San Antonio	199,404	461,898	2,151,997	8,032,162	5,395,855
Sherman	16,781	16,949	37,255	435,234	335,670
Sweetwater	1,580	9,950	11,905	132,025	140,316
Tyler	174,612	24,755	33,261	972,391	2,246,654
Waco	80,867	57,296	102,713	2,562,982	1,496,104
Wichita Falls	887,829†	62,165	74,130	2,186,145	1,019,702
TOTAL	\$10,098,496	\$ 5,676,587	\$ 6,996,928	\$95,602,251	\$86,669,331

*Not included in total.

†Does not include public works.

‡Not available.

Notes: Compiled from reports from Texas chambers of commerce to the Bureau of Business Research.

DECEMBER SHIPMENTS OF LIVE STOCK CONVERTED TO A RAIL-CAR BASIS*

	Cattle		Calves		Hogs		Sheep		Total	
	1940	1939	1940	1939	1940	1939	1940	1939	1940	1939
Total Interstate Plus Fort Worth†	2,507	2,810	898	899	699	547	192	288	4,296	4,544
Total Intrastate Omitting Fort Worth	308	341	93	134	22	20	23	39	446	534
TOTAL SHIPMENTS	2,815	3,151	991	1,033	721	567	215	327	4,742	5,078

TEXAS CAR-LOT* SHIPMENTS OF LIVE STOCK FOR YEAR 1940

	Cattle		Calves		Hogs		Sheep		Total	
	1940	1939	1940	1939	1940	1939	1940	1939	1940	1939
Total Interstate Plus Fort Worth†	47,125	55,029	13,672	15,193	8,334	8,457	11,446	10,235	80,577	88,914
Total Intrastate Omitting Fort Worth	5,070	8,198	1,139	1,703	239	431	1,000	1,695	7,448	12,027
TOTAL SHIPMENTS	52,195	63,227	14,811	16,896	8,573	8,888	12,446	11,930	88,025	100,941

*Rail-car Basis: Cattle, 30 head per car; calves, 60; hogs, 20; and sheep, 250.

Fort Worth shipments are combined with interstate forwardings in order that the bulk of market disappearance for the month may be shown, sending every live stock shipping point in the State. The data are compiled by the Agriculture by railway officials through more than 1,500 station agents, representing every live stock shipping point in the State. The data are compiled by the Agricultural Marketing Service, U.S. Dept. of Agriculture, Bureau of Business Research.

Notes: These data are furnished the Agricultural Marketing Service, U.S. Dept. of Agriculture, Bureau of Business Research.

BANKING STATISTICS

(In Millions of Dollars)

	December, 1940		December, 1939		November, 1940	
	Dallas District	United States	Dallas District	United States	Dallas District	United States
DEBITS to individual accounts.....	\$ 1,250*	\$51,424*	\$ 1,197*	\$48,940*	\$ 916	\$36,117
Condition of reporting member banks on—	Dec. 31, 1940		Jan. 3, 1940		Nov. 27, 1940	
ASSETS:						
Loans and investments—total.....	581	25,527	548	23,087	580	24,902
Loans—total.....	318	9,390	288	8,674	304	9,128
Commercial, industrial, and agricultural loans.....	219	5,018	193	4,353	204	4,911
Open market paper.....	1	301	2	315	2	299
Loans to brokers and dealers in securities.....	5	584	3	700	3	467
Other loans for purchasing or carrying securities.....	14	465	14	504	14	460
Real estate loans.....	23	1,230	23	1,188	24	1,228
Loans to banks.....	—	37	—	50	1	39
Other loans.....	56	1,755	53	1,564	56	1,724
Treasury Bills.....	27	611	17	595	37	784
Treasury Notes.....	38	2,129	42	1,755	34	1,861
U.S. Bonds.....	99	6,979	95	6,353	101	6,898
Obligations fully guaranteed by U.S. Gov't.....	40	2,743	49	2,412	45	2,707
Other securities.....	59	3,675	57	3,298	59	3,524
Reserve with Federal Reserve Bank.....	150	11,797	138	9,831	142	12,138
Cash in vault.....	12	535	12	504	13	540
Balances with domestic banks.....	282	3,462	264	3,140	286	3,347
Other assets—net.....	30	1,211	29	1,193	31	1,249
LIABILITIES:						
Demand deposits—adjusted.....	508	22,299	448	18,566	516	22,189
Time deposits.....	136	5,432	137	5,276	135	5,375
U.S. Government deposits.....	30	474	33	586	32	531
Inter-bank deposits:						
Domestic banks.....	287	9,065	284	8,190	274	8,843
Foreign banks.....	1	692	—	740	1	671
Borrowings.....	—	—	—	—	—	1
Other liabilities.....	4	748	3	683	4	744
Capital account.....	89	3,822	86	3,714	90	3,822

NOTE: From Federal Reserve Board.

*Five Weeks.

DECEMBER, 1940, CARLOAD MOVEMENT OF
POULTRY AND EGGS

COMMODITY PRICES

	Dec., 1940	Dec., 1939	Nov., 1940
WHOLESALE PRICES:			
U. S. Bureau of Labor Statistics (1926=100)	80.0	79.2	79.6
FARM PRICES:			
U. S. Department of Agriculture (1910-1914=100)	101.0*	96.0	99.0
U. S. Bureau of Labor Statistics (1926=100)	69.7	67.6	68.2
RETAIL PRICES:			
Food (U. S. Bureau of Labor Statistics 1935-39=100)	97.2	94.9	95.9
Department Stores (Fairchild's Publications, January 1931=100) ..	93.9	92.0	93.7

*Preliminary.

Shipments from Texas Stations

Destination*	Cars of Poultry								Cars of Eggs†		
	Live				Dressed				1940	1939	
	Chickens	Turkeys	Chickens	Turkeys	Chickens	Turkeys	Chickens	Turkeys			
	Dec. 1940	Dec. 1939	Dec. 1940	Dec. 1939	Dec. 1940	Dec. 1939	Dec. 1940	Dec. 1939	Dec. 1940	Dec. 1939	
TOTAL	2	17	25	38	9	550	588	515	30.0	4.5	
Intrastate	0	0	0	0	0	16	4	3.0	4.5	25.5	
Interstate	2	17	25	38	9	534	584	48.5	25.5	—	
Origin	Receipts at Texas Stations										
TOTAL	—	—	—	—	11	—	6	—	3	50.0	15.5
Intrastate	—	—	—	—	8	—	6	—	3	1.0	4.5
Interstate	—	—	—	—	3	—	0	—	0	49.0	11.0

*The destination above is the first destination as shown by the original waybill. Changes in destination brought about by diversion orders are not shown.

†Powdered eggs and canned frozen eggs are converted to a shell egg equivalent.

NOTE: These data are furnished the Agricultural Marketing Service, United States Department of Agriculture, by railroad officials through agents at all stations which originate and receive carload shipments of poultry and eggs. The data are compiled by the Bureau of Business Research.

DECEMBER CREDIT RATIOS IN TEXAS RETAIL STORES

(Expressed in Per Cent)

	Number of Stores Reporting	Ratio of Credit Sales to Net Sales		Ratio of Collections to Outstandings		Ratio of Credit Salaries to Credit Sales	
		1940	1939	1940	1939	1940	1939
All Stores	66	62.0	62.9	41.6	41.4	0.8	0.7
Stores Grouped by Cities:							
Abilene	3	51.8	53.7	33.6	35.0	1.0	0.9
Amarillo	3	56.8	60.1	43.6	52.5	1.1	0.9
Austin	6	55.7	55.7	48.1	49.5	0.7	0.7
Beaumont	3	62.9	64.0	44.3	46.9	0.9	1.0
Bryan	3	57.7	55.9	40.0	42.7	2.3	2.2
Dallas	10	68.1	68.4	42.5	41.6	0.6	0.5
Fort Worth	5	60.4	59.8	40.5	39.7	1.0	1.0
Houston	8	59.8	59.7	40.8	41.4	0.9	0.9
San Antonio	3	55.4	62.1	45.8	42.6	0.9	0.7
Waco	5	57.7	58.0	29.9	32.3	0.9	0.9
All Others	17	57.4	58.2	40.7	40.5	0.9	0.8
Stores Grouped According to Type of Store:							
Department Stores (Annual Volume Over \$500,000)	19	61.2	62.5	43.7	43.7	0.8	0.7
Department Stores (Annual Volume Under \$500,000)	11	53.9	56.6	40.1	40.3	1.2	1.1
Dry Goods-Apparel Stores	4	59.5	61.4	46.8	45.7	1.0	1.0
Women's Specialty Shops	15	68.5	67.9	36.5	35.6	0.5	0.5
Men's Clothing Stores	17	61.7	61.4	39.3	40.2	0.9	1.0
Stores Grouped According to Volume of Net Sales During 1939:							
Over \$2,500,000	8	64.1	64.9	43.9	43.8	0.6	0.5
\$2,500,000 down to \$1,000,000	10	58.2	57.1	42.3	45.5	0.9	0.8
\$1,000,000 down to \$500,000	10	54.2	58.2	40.7	43.2	0.9	0.9
\$500,000 down to \$100,000	27	54.0	58.0	41.8	40.9	1.1	1.1
Less than \$100,000	11	57.1	54.3	44.3	43.1	2.1	2.0

NOTE: The ratios shown for each year, in the order in which they appear from left to right, are obtained by the following computations: (1) Credit sales divided by net sales. (2) Collections during the month divided by the total accounts unpaid on the first of the month. (3) Salaries of the credit department divided by credit sales.

The data are reported to the Bureau of Business Research by Texas retail stores.

LIST OF PUBLICATIONS

PRINTED BULLETINS

- The Basis of the Commercial and Industrial Development of Texas, by Elmer H. Johnson. Price \$2.00
- Natural Regions of Texas, Elmer H. Johnson. Price \$1.00
- Directory of Texas Manufactures, by F. A. Buechel and Clara H. Lewis. Price \$2.00
- Eight Years of Livestock Shipments in Texas, 1925-1932, Part I, Cattle and Calves, by F. A. Buechel. Price \$1.00
- Supplement to Part I, 1933-1939, by F. A. Buechel. Price \$1.00
- Part II Hogs and Sheep, 1925-1939, by F. A. Buechel. Price \$1.00
- A System of Accounting Procedure for Livestock Ranches, by F. W. Woodbridge. Price \$1.50
- Methods for the Study of Retail Relationships, by William J. Reilly. Price \$1.00
- What Place Has the Advertising Agency in Market Research, by William J. Reilly. Price \$1.00

MIMEOGRAPHED BULLETINS

- Studies of Employment Problems in Texas, by A. B. Cox. Price \$1.00
- Manufacture of Dairy Products in Texas, by F. A. Buechel and Elmer H. Johnson. Price \$1.00
- Farm Cash Income in Texas, 1927-1938, by F. A. Buechel and Elmer H. Johnson. Price \$1.00

MONTHLY PUBLICATIONS

- TEXAS BUSINESS REVIEW. Price \$100 per year
- New Passenger Car Registration in Texas. Price \$2.00 per year
- New Commercial Car Registration in Texas. Price \$1.50 per year

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