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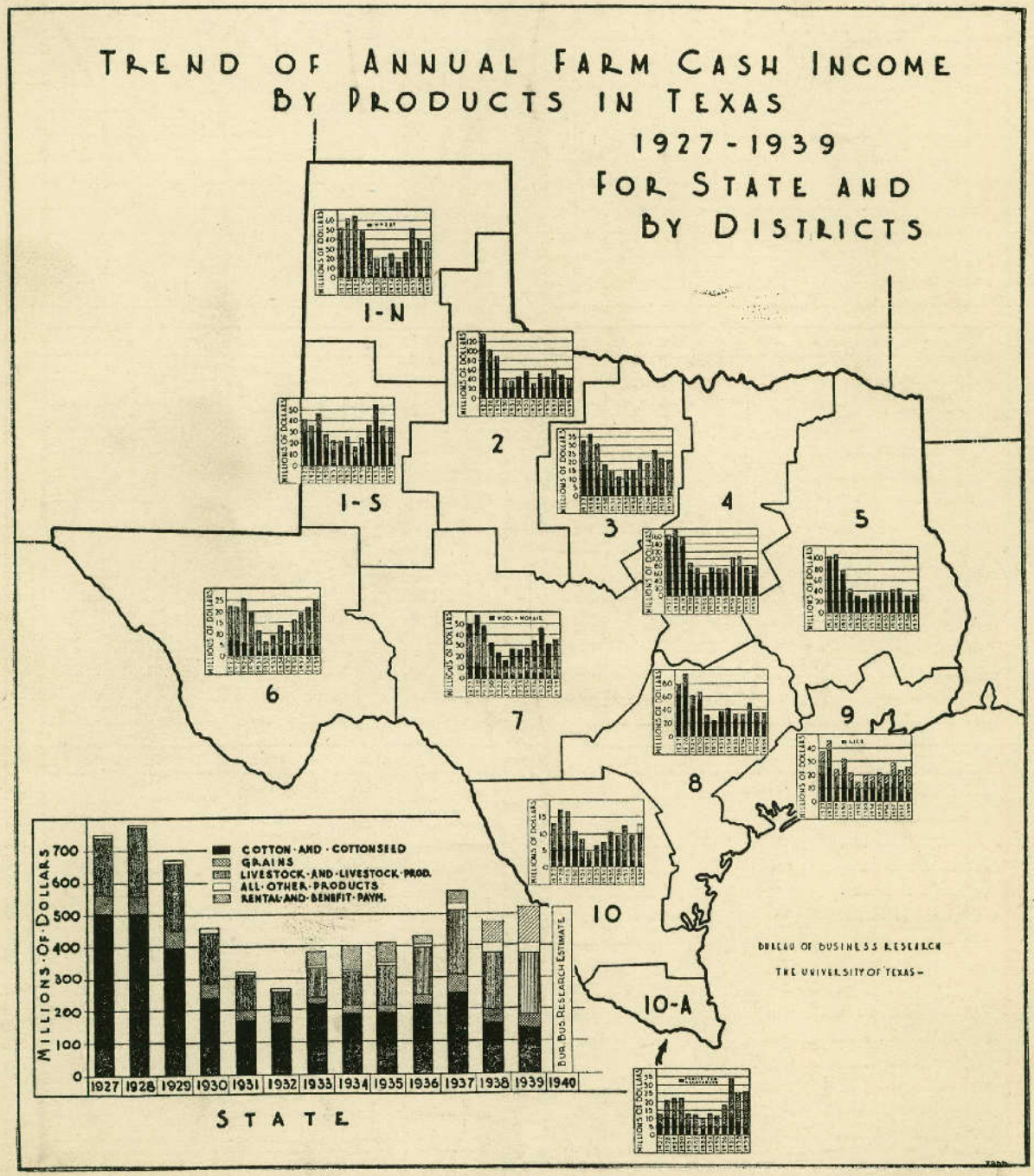

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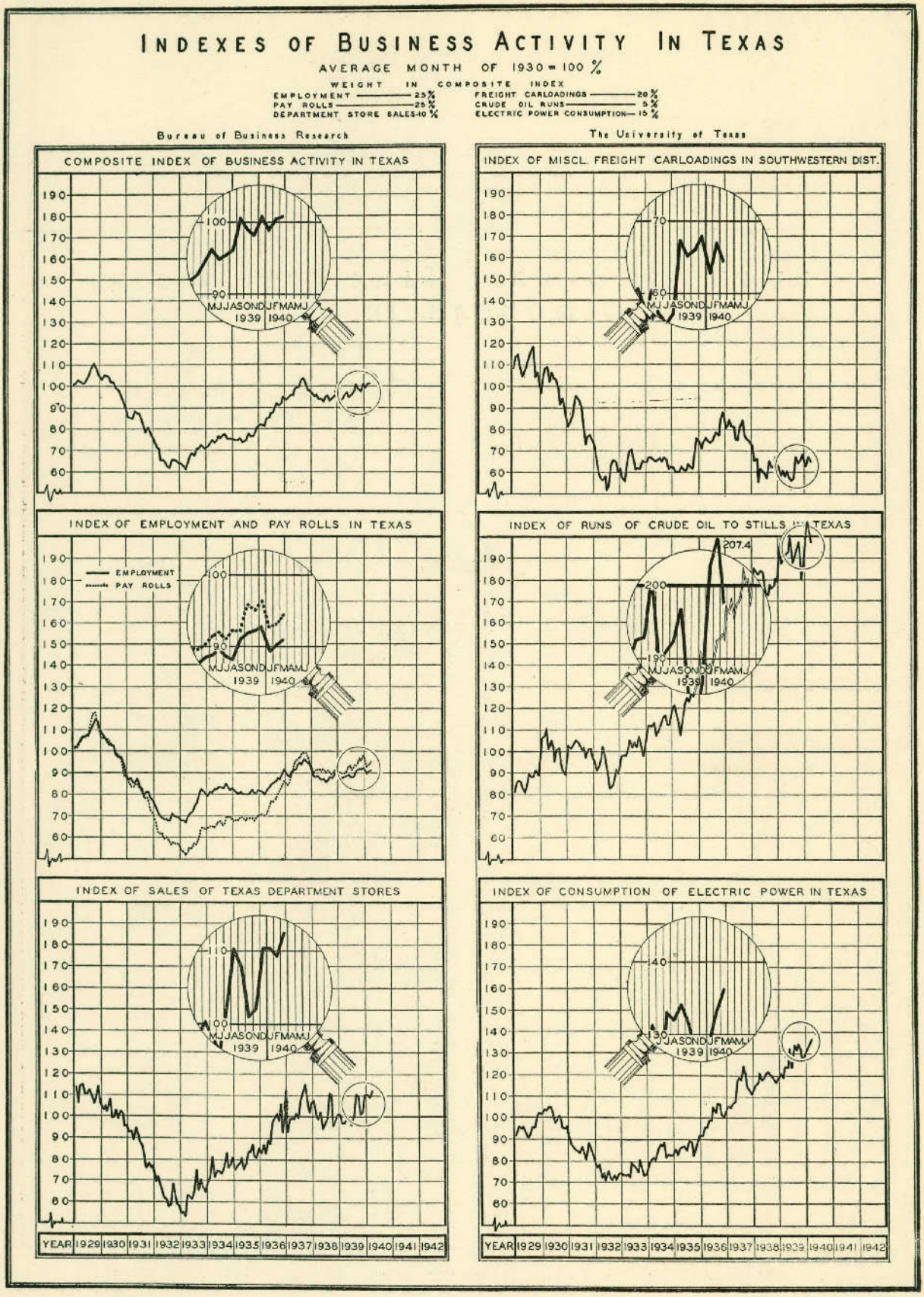

INDEXES OF BUSINESS ACTIVITY IN TEXAS
AVERAGE MONTH OF 1930 = 100 %
WEIGHT IN COMPOSITE INDEX
EMPLOYMENT 25%
PAY ROLLS 25%
DEPARTMENT STORE SALES 10%
FREIGHT CARLOADINGS 20%
CRUDE OIL RUNS 5%
ELECTRIC POWER CONSUMPTION 15%
Bureau of Business Research
The University of Texas
COMPOSITE INDEX OF BUSINESS ACTIVITY IN TEXAS
INDEX OF MISCL. FREIGHT CARLOADINGS IN SOUTHWESTERN DIST.
INDEX OF EMPLOYMENT AND PAY ROLLS IN TEXAS
EMPLOYMENT
PAY ROLLS
INDEX OF RUNS OF CRUDE OIL TO STILLS IN TEXAS
INDEX OF SALES OF TEXAS DEPARTMENT STORES
INDEX OF CONSUMPTION OF ELECTRIC POWER IN TEXAS
M J J A S O N D J F M A M J
1939 1940
YEAR 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942

Business Review and Prospect

General Business

Industrial activity in the Nation at large continues downward, the drop for the week ended April 15 having been the sharpest since the descent began early in January, according to Barron's index. It is more than probable, however, that the bottom for the present movement has almost been reached and that the margin of gain over a year ago (at present, about seven per cent) will soon begin to widen.

A number of factors support the opinion that the current recession has about run its course and that a definite reversal of the downward trend may be expected within the next six or eight weeks. Buying generally has become more active, thus far in April. Orders for steel, cotton textiles, non-ferrous metals, and other products, although still far below the rate of early last fall, have turned upward, which suggests that fabricators will not gamble on being short of supplies, and that the high rate of consumption is forcing inventory replacement. The war and the forthcoming general election may befog the business outlook, causing erratic tendencies in special lines of activity, but most of the significant indicators point to gradual improvement in general business for the Nation.

Texas Business

Although the business indexes for the Nation at large have dropped precipitately since early in January, the composite business index for Texas has gradually been rising. This situation suggests that there are in Texas strong, underlying forces which keep the economic life of this State on a relatively even keel in the face of wild gyrations of industrial activity in the North and East. The primary reason for the relative stability of Texas industry and trade has been pointed out before in this column, but it will bear repetition. Industrial activity in Texas rests largely on two industries—agriculture in its varied forms and petroleum with its broad ramifications. The products of both of these industries constitute an important part of the every-day consumption of all classes of people throughout the Nation. In contrast with the durable and semi-durable goods produced in the industrial sections of the country, the purchases of which may often be postponed or even entirely omitted, the goods produced in Texas are of a type which require day-to-day replenishment. Next to the necessary food for subsistence, gasoline stands at the top of the list among the indispensable items in the American pattern of living.

Not only do agriculture and oil (including gas) lend current stability to Texas economy, but there is every reason for believing that they will continue to do so for a long time to come. The trend of business in this State from these sources alone (when the vast potentials in both agriculture and oil are taken into account) is upward. Add to this fact the wide range of minerals other than oil, in which this State abounds, and the varied industries yet to be built upon both agricultural and mineral raw materials, the upward urge of industrial activity in this State would appear to be well-nigh irresistable. If, as is now expected, the National business indexes soon begin to turn upward, this fact should be reflected rather promptly in a stronger upward trend in the Texas business index than now prevails.

INDEXES OF BUSINESS ACTIVITY IN TEXAS

	Mar. 1940	Mar. 1939	Feb. 1940
Employment	90.8	87.4	90.1
Pay Rolls	94.8	89.6	93.2
Miscellaneous Freight Carloadings (Southwest District)	64.4	60.9	67.0
Crude Runs to Stills	197.3	200.3	207.4*
Department Store Sales	112.6	97.4	109.3
Electric Power Consumption	136.4	121.7	133.0*
COMPOSITE INDEX	100.9	94.5	100.5*

*Revised.

Farm Cash Income

Cash income from agriculture in Texas continued through March to make unfavorable year-to-year comparisons with 1939, but the level of income is only moderately below that of a year ago. The decline in farm cash receipts is mainly the result of smaller marketings of livestock during the first three months of the year —especially of cattle. Since the total number of cattle and calves on Texas farms and ranches on January 1 was less than four per cent below that on the corresponding date a year earlier, and shipments thus far this year have declined sharply in comparison with a year ago, it is probable that shipments of cattle in future months will at least equal, and may exceed, those of the comparable month in 1939. Prices, moreover, have been strengthening in recent weeks and this tendency promises to continue. Thus, with the probability of increases in both marketings and prices, income from livestock promises soon to compare favorably with a year ago.

The chart on the cover page of the Review shows the trend of farm cash income in Texas from 1927 through 1939 both for the State and the various crop-reporting districts. The State data include government subsidies as well as the income from actual sales of farm products, but the district data include only receipts from farm products. A chart to be shown in a later issue of the Review will present both government payments and receipts from farm products for the individual districts, as well as for the entire State.

INDEX OF AGRICULTURAL CASH INCOME IN TEXAS

Districts	Mar. 1940	Feb.* 1940	Mar. 1939	(000 Omitted) Cumulative Income Jan.–Mar. 1940	Jan.–Mar. 1939
1–N	77.6	73.7	85.1	$ 4,889	$ 5,972
1–S	208.4	132.8	147.1	4,932	4,616
2	80.1	76.5	82.8	4,066	3,388
3	93.3	111.3	108.1	2,550	2,920
4	81.0	94.8	77.7	6,699	5,670
5	43.6	45.5	54.7	1,176	1,354
6	145.7	106.1	275.0	3,306	5,914
7	130.6	137.6	91.6	3,704	2,875
8	102.8	106.1	102.3	3,312	3,511
9	81.2	112.6	74.6	3,530	3,024
10	137.6	86.0	227.1	1,497	2,138
10–A	118.0	178.2	166.9	7,629	8,972
STATE	78.2	90.5	85.9	47,290	50,354

*Revised.

F. A. Buechel

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

Financial Situation

In the March issue of the TEXAS BUSINESS REVIEW it was stated that there are two phases to the gold problem: First, a short-run phase, or the necessity of protecting our economic system against the dangerous inflationary potentialities which have emanated from our past gold accumulation and will be enhanced by subsequent gold imports. Second, a long-run phase, or the much more difficult problem of solving the deep-seated economic and political maladjustments which have been fundamentally responsible for the constant stream of gold that has flowed into the United States from practically all parts of the civilized world.

The first phase of the problem appears to be a problem of credit control and, as such, is essentially domestic in nature, even though the repercussions of such domestic action might be felt abroad. The immenseness of the unused banking reserves and the free gold stock of the United States is so generally realized that even a statistical summary would be redundant. Likewise, the per dollar expansive power of excess reserves and free-gold has been a subject of discussion in banking and financial publications so frequently in recent years that there are probably few business men who do not realize that the banking system is able to "make dollars" through a process of multiple credit expansion.

But, it must be accepted as a corollary of this power of credit creation that the central banking authority shall have the power and the devices at its disposal to control its banking system. Inasmuch as commercial banks create credit on the basis of excess reserves, the crux of the problem of credit control lies in the reserves of the commercial banks. The banking authority should be in a position at all times either to stimulate an increase, or eliminate a surfeit, of excess reserves. In spite of the fact that the Federal Reserve authorities possess a number of credit control powers which would probably be adequate to meet any normal situation, the magnitude of the present excess reserves not only makes the member banks independent of resort to Reserve bank credits, but clearly places them beyond Reserve authority control. The following passage taken from The Annual Report (1938) of The Board of Governors of the Federal Reserve System is even more accurately expressive of the situation now prevailing, than when the report was submitted.

"There is nothing in the present (1938) monetary or banking situation that would point to a proximate danger of injurious credit expansion. It is in such a period as this, however, when there is no call for quick action to meet emergency situations, that problems that may arise in the future should be analyzed and the efficiency of existing machinery appraised. . . . The ability of the banks greatly to expand the volume of their credit without resort to the Federal Reserve banks would make it possible for a speculative situation to get under way that would be beyond the power of the System to check or control."

The essential step, therefore, toward arriving at a practical—even though temporary—solution of the credit phase of the gold problem should be to equip the banking authority with the power to bring the member banks again within its effective control. Legislation should be enacted by Congress without further delay which would enable Federal Reserve authorities to raise the legal reserve requirements of member banks to such a point as the authorities might deem necessary to protect the country against unwarranted and dangerous credit expansion. Legal minimum reserves of member banks should not be considered as a fund with which the member banks are able to meet the demands of their depositors, but as a means of compelling member banks to contribute equitably toward securing an optimum efficiency of operation from the central banking machinery.

If the point of view just expressed is sound, then, while there should be a legal minimum reserve, it should be subject to variation, without limit, at the discretion of the banking authority. It should not be necessary to make frequent changes in the minimum reserve requirements, for the banking authority should be able to control all but unusually abnormal credit developments by means of the more orthodox and less drastic control devices at its disposal. However, when the abnormal situation arises (as it may out of the present situation) the authority should not be compelled to await the delay and uncertainty of legislative action.

Inasmuch as the Federal Reserve authorities have the power to limit the amount which holders of securities may borrow upon them, either from banks or from brokers and security dealers, for the purpose of purchasing or carrying securities, it is probable that considerable control could be exercised over stock market speculation. By raising the minimum margin requirement the Board is able to reduce the flow of bank credit into the security markets, thus influencing expansion in one sector of the economic system without direct effect upon other economic activity. This power, coupled with the power proposed above to change reserve requirements, should enable the Reserve authorities to regain the credit control over the banking system which they have lost as a result of gold imports.

It is what we have chosen to call the long-run phase of the gold problem that poses the most difficult question, for its solution is much more than a monetary or banking problem; its scope encompasses practically the whole field of international economics. Monetary gold might be likened to a barometer reacting to the changes in international economic weather. One can change or recalibrate the gold barometer but that alone will not control its gyrations; only by first stabilizing the international economic weather can the gold barometer be regulated and then it will be merely depicting faithfully those factors which condition its operation. Numerous gold proposals, some of them admittedly stop-gap measures, have been suggested during recent months.

Perhaps the most extreme proposal advanced is that of imposing an embargo against gold imports. But, complete stoppage of gold purchases would subject the foreign exchanges to such violent fluctuation and cause such an appreciation in the value of the dollar in terms of foreign currencies that such a proposal does not deserve serious consideration. At best, our export trade would be paralyzed, with the depressing effects filtering through into other parts of our economic structure.

Furthermore, to stop buying gold would be to abandon that semblance of the gold standard which still exists in the world today, and to encourage demonetization of the yellow metal, a move which is surely unwise on our part, in view of our huge gold holdings. Other proposals include a reduction in the price of gold, a lower purchase price for new gold, while present gold stocks are valued at the current $35 per ounce; a tax on the importation of gold; an international compact to restrict the production of new gold; a revival of the gold sterilization scheme as practiced during 1936–1937; and an immediate restoration of a gold specie standard, gold being valued at $35 per ounce.

With the two exceptions of a refusal to accept gold, and the restriction of new gold production, it is very doubtful whether—with world conditions as they are—any of the proposals would substantially reduce gold imports. The first exception has been criticized in the preceding paragraph and the second is probably unattainable as long as the powers that control the principal gold-producing areas of the world are engaged in war. If the Federal Reserve authorities should be granted the power to control reserve requirements as suggested earlier in this article, gold sterilization would serve no useful purpose, and, in any event, would involve a substantial increase in the government debt. Finally, even if it were desirable for the United States to restore a full gold standard at a time when the outlook, for an indeterminate period is one of political and economic instability, if not chaos, in most countries, the effect of such action upon gold imports would probably be insignificant.

In short, none of the various gold proposals reach to the roots of the gold problem. Any long-run solution of the problem must provide means of removing the economic maladjustments that exist between nations, of eliminating the political instability that prevails, and of reducing the financial risks that confront foreign investors in their own markets. To seek international economic and political reconstruction on such a wide scale in the midst of a major war, however, is simply futile. As the war continues, the United States probably will attract an excess of gold imports, for, with the possible exception of nominal gold loans to South and Latin American countries for currency stabilization purposes, there is little likelihood of losing a substantial part of our gold stock. We may find that our gold stock will represent an even larger proportion of the world's gold when the war ends than at present. Such a situation, however, need not lead to demonetization of gold, with the United States left "holding the bag."

Other nations have already demonetized gold, i.e., they have abandoned the gold standard, and the effect has been to increase the value of our gold in terms of their currencies. Further depreciation of the currencies of belligerents is probable if the war is prolonged and intensified, but the whole of monetary history indicates that subsequent restabilization will be on the basis of that single monetary element—gold—which will have preserved its value. "Instead of universal abandonment of gold by other countries leaving us 'holding the bag,' it would place a powerful club in our hands so far as the exchange of currencies is concerned."[1]

WATROUS H. IRONS

[1]Spuhr, W. E., *The Case for the Gold Standard*, Economists National Committee on Monetary Policy, (1940)

Modern Geography and World Economy

The degree to which geography constitutes the bases of modern nations and contributes the fundamental factors in international relations should be quite apparent. Perhaps, however, without attempting a definition, it would be well to present a point of view as to what geography is. For instance, the geographer is not concerned with just where a place is; far more important is what it is, and why is it there; and being where it is and what it is, what is its significance?

In order to present a perspective and background for the main discussion of this paper, the following brief outline is introduced.

I. First may be noted institutional factors, economic forces and social relations, including science and technology which constitute the conditioning factors having to do with the utilization of the world's natural resources.

Historically, these conditioning factors are institutional reactions growing out of certain forms of natural resource utilization; now they have become controlling factors conditioning the use and the tempo of development of the world's natural resources. The warp and woof of the institutional fabric grow out of long-time adaptations and adjustments of peoples to certain predominating environmental conditions; these adjustments are concerned largely with the means of making a living and under contrasting environments the larger aspects of the types of cultural adjustments stand out in striking contrast, such for example, as democracy in contrast to autocracy, free institutions against slavery, a social order making for creative developments in contrast to one of fixed or static characteristics.

These conditioning factors represent an interlocking of a complex grouping of such things as: The prevailing social order; the state of the industrial arts; types of economic organization, including the capitalist aspects of modern life, and international combinations. These conditioning factors embrace, too, the operation of pecuniary motives as against industrial development. Also embodied in these conditioning forces is modern industry characterized by its mass production technique. Included too are such factors as initiative, the driving forces, economic, intellectual, and social, all striving to make progress. Space forbids even an outline of the development of various cultures in the great environmental regions of the earth. The following quotation from Peter Drucker's "The End of Economic Man," (John Day Company) summarizes one important aspect of the problem: "To strive always after the unattainable freedom and the unattainable equality has been the driving force of Occidental history. Whether in the process we have progressed from a lower to a higher sphere, or whether we have been continuously declining, the dynamics and the messianic character of

our basis has given us a continuous development, whereas all other civilizations have been stationary." Drucker continues with reference to current affairs: "But the dynamic character of our history, which is all our strength, is also our weakness; for it makes periods of transition like the present one inevitable."

II. Institutional factors are dependent upon physical conditions; the characteristics of natural resources afford the potentialities and set the final limitations in the utilization of natural resources. It is hardly necessary to state that natural resources are the storehouses of natural wealth. The scientific study of the distribution of physical features on the earth's surface is physical geography. Physical geography makes obvious the combinations of natural resources, as in the same mineralized areas, or the degree of juxtaposition of different mineralized areas, or of different raw materials regions.

Concerning resources and their utilization it is necessary to consider such things as the factors of availability and accessibility; the characteristics of the natural resources themselves together with the earth environmental conditions with which they occur. Features of accessibility associated with geographic location and especially of maritime or continental orientation are particularly significant, and have been throughout history.

Non-uniformity of character and irregularities of occurrence are the rule in the distribution of the world's resources and physical capabilities. Nature has made these things so; they cannot be changed. Man can but make adjustments—or mal-adjustments—thereto.

III. The actualities of production, in all its forms and varieties, are to be interpreted in the light of interactions between I. and II., influenced or modified greatly by science and technology. Complete examination in the light of the foregoing factors makes out the "classic" factors of production—land, labor, and capital—as indeed much too simple to give anything like a full interpretation of today's economic affairs as such.

World Economic Geography

Primary factors of the world's economic geography are the industrial centers of the dominant industrial regions. These are strictly limited in number by the architecture of the earth itself; they represent the concentration centers of power—of control. The location, characteristics, growth, and outstanding importance of these centers are due mainly and primarily to a fortunate combination of physical factors set by the geography of the regions. It is the natural wealth of these regions that have made them great, in spite of the tendencies to thwart a full development of natural wealth and its potentialities by interests devoted principally to pecuniary considerations. These are the activating regions, supplying the driving power either of nations or industries, or of economic and commercial combinations.

The world "centers of action"—of economic life, embracing the centers of finance, industry, transportation, communication, of science and technology,—all lie in a zone of comparatively narrow geographic range, at either side of the North Atlantic. These are not only the sources of economic action, but their power is extended much farther, as in market-controls, production-controls, and price-controls.

The industrial centers of the world—the world's power belt—lie at either side of the North Atlantic, and these centers have developed within mineralized areas whose geographic distribution corresponds generally to the world's Mixed Farming regions, which are also the historic home of free institutions, of democracy, of the will to progress, and of constitutional government. The fact of maritime orientation of the European Mixed Farming region, due to the geography, particularly that of the North Sea Rectangle, has also played a prominent part in the rise of the institutional factors associated with the environmental features of the region.

Unquestionably there is an important, if subtle, even "intangible," relation between the institutions that arose in West-central Europe, particularly of the North Sea Rectangle based upon Mixed Farming as a way of life and attendant upon sea trade, and the later rise of the Industrial Revolution in this section of the world.[1]

Obviously present-day climate and past climatic and geologic conditions (such as those resulting in the Coal Measures of the Carboniferous period) are also to be given no little consideration in the interpretation of the basic features of the life and development of this region.

At a later date came the transfer of institutional patterns to East-central North America from the North Sea Rectangle; the conquest of the American frontier then added its patterns to the institutional bases already developed in West-central Europe.

To sum up: a) the institutional patterns connected with Mixed Farming also greatly influenced by the sea-frontier apparently were the determining factors in the growth of democracy in the Old World—and this growth as affecting the modern world took place only in one region—that of the North Sea Rectangle.

b) The transfer of these institutional patterns from Western Europe to East-central North America, where they were superimposed on a somewhat similar environment but with the significant added factor of influence by the land-frontier: the institutional reactions of the conquest of the frontier with which the Westward Movement was concerned constituted the primary contribution to American democracy.

World Centers of Power

The world centers of mineral power—which are also the centers of industrial and political power—are firmly etched into the world's mineral geography; furthermore owing to the world's mineral geography, in relation to dominant economic and social factors, including technology, and to certain phases of industrial development itself, they will remain grouped for some time to come at either border of the North Atlantic Ocean. The world's industry pivots upon an enormous release of energy—upon the large use of coal and oil.

The function of coal, the greatest of the minerals in modern life has been aptly summarized by Walter S. Tower: "The industrial life of the modern world rests

[1] I do not know the extent to which this relationship has been pointed out previously. The late Professor Ramaan undoubtedly saw a part of the picture, as is also true of Dr. Marbut. Veblen sensed it, making direct references to the technique of Mixed Farming; whether or not he developed the concept further in his lectures is unknown to the writer.

on a basis which has come to be more or less taken for granted, that is, on an abundant and cheap supply of coal. Nations which have been able to produce large supplies of coal easily have become economically great and politically powerful. On the other hand, nations with little or no coal at their command have remained economically dependent and have failed to obtain very high political rank. Thus for decades the United States, the United Kingdom and Germany have been more and more the dominant figures in world industry and international affairs. It is true that China, Canada, and Russia have large coal resources—larger, in fact, than those of other countries except the United States—but so far these resources have been neither so readily accessible nor so easily available as to permit the economic development which would have followed from more favorable conditions."

Energy resources harnessed in modern industry have become the dynamic bases of economic development in today's world. As concisely expressed by Leith in his *Economic Aspects of Geology* (Henry Holt & Co.): "Coal overshadows all other mineral resources, except water, in production, value, and demand. Roughly two-thirds of the world's coal is used for power, one-sixth for smelting and metallurgical industries, and one-sixth for heating purposes. Coal constitutes over one-third of the railway tonnage of the United States. . . .

"The great coal-producing countries of the world border on the North Atlantic basin. . . . There is similarity in the major features of the distribution of coal production and of iron ore production. The great centers of coal production—the Pennsylvania and Illinois fields of the United States, the Midlands district of England, and the lower Rhine or Westphalian fields of Germany—are also the great centers of the iron and steel industries of these countries. As in the case of iron ore, there is rather a striking absence of important coal production in the southern hemisphere and in Asia."

Coal is by far the outstanding mineral resource of Europe; it is the mineral resource most intensely developed in Europe—and it is the basis of Europe's industry.

These centers of action, the world's centers of power are exemplified particularly in the geographic distribution of the world's primary centers of the iron and steel industry. The big centers of the world's iron and steel industry in turn are built on the world's great coal fields on either side of the North Atlantic.

Besides the dominant factor of "accessibility to a large coal supply of proper coking grade for use in smelting," there are other necessary conditions to be met in establishing a great iron and steel industry. These have been concisely summarized, *Foreign Affairs*, June, 1923, by C. K. Leith, America's outstanding student of the economics of mineral resources and internationally recognized as an authority on the political and international aspects of the geography of minerals.[2]

a) "a huge ore reserve of a suitable grade in a limited area;"

These other essentials include:

b) "accessibility to population large enough and with sufficient industrial development to furnish demand"; and

c) "control by people with organizing ability, driving power, technical skill, and capital to convert the ore into form adapted to demand." Furthermore, Leith observes: "Once established, the inertia of invested capital helps to maintain production at a few places in spite of potentially favorable conditions in undeveloped regions." It should be obvious, as Leith states, that the relative importance of these factors is not the same in all the great centers of production.

Here it may be noted that the iron and steel industry is something more than iron ore production and an aggregation of blast furnaces, for the market requires a multitude of finished types of goods. As stressed by Leith, a unit of the iron and steel industry embraces the complex "network of iron mines, coal mines, transportation lines (water and rail), blast furnaces, steel plants, finishing plants, and factories using iron and steel products, which go to make up each of the principal geographic groups of the iron and steel business."

The Economics of Mineral Resources

Sea power as an "old" factor in national power is of course accorded plentiful recognition these days; what is not always recognized, however, is that modern sea power is a form of industrial power, and industrial power is a function of mineral geography—of the utilization of mineralized areas, either those areas possessing fortunate combinations of minerals used in large quantity or those possessing large available reserves of essential minerals.

The newness of minerals as a dominating factor in industry and economic life is an outstanding aspect of the minerals problem; it is true that the use of minerals by man goes back to the Bronze Age and the Iron Age; but large use of minerals came only with the Industrial Revolution, and the truly large mineral developments have come since 1890.

The recentness of the rise to importance of mineral resources in national economies and international relations is exemplified in the fact that in the period from 1929 to 1939 inclusive, the world has produced more petroleum than in all preceding history! It is true that the recent rate of growth of petroleum production exceeds that of many minerals; they had a stage of strikingly rapid growth prior to that of petroleum. Petroleum, like the light metals such as aluminum, and the ferro-alloys, is comparatively a newcomer in the realm of large mineral production.

Due to the progressive exploration under the aegis of the new importance of minerals, the main outlines of the mineral geography of the world, past, present and future are now pretty clearly discernible to the student of mineral resources. They may be summarized as follows:

a) Mineral resources (in such concentrated form and large volume as to be commercially available) are very unequally distributed in the earth; they are conse-

[2]It is indeed a pleasure to acknowledge my indebtedness to Dr. Leith for a fuller understanding of the implications of mineral resources. In preparing this article, Leith's writings have been greatly important to me.

quently even more unequally distributed among the nations of the earth. It is this bunching together in a few places of the world's essential minerals that is the base of the world's minerals problem—of the struggle for mineral resources which does not always stop short of war; in fact, in recent years it seems seldom to stop even with war. The minerals problem is not one of imminent exhaustion; it is a problem of great inequalities or irregularities in geographic distribution, in irregularities in the richness and the size of the deposits.

No nation on the face of the earth is self-sustaining in the essential minerals and there are not enough—not nearly enough—of the large sources of essential supply to go around among the nations.

b) World demand for minerals has suddenly become very large; the demand is a multiplying one, and adequate supplies of mineral resources are not only necessary to the world's industry; they have become strategically important, even to the matter of life and death of peoples and of nations. We have for some time now been witnessing the sad spectacles of peoples occupying strategic locations and of essential mineralized areas being regarded as pawns in the struggle for world power. But Admiral Mahan in 1910 pointed out the dangers of the growing enmity between Germany and Great Britain and called attention to the results of this struggle upon the rest of the world. Since 1910 the stage of the struggle for control of mineral resources has extended to the far corners of the earth, There is, however, one compensating factor; the demand for mineral raw materials would already have reached fantastic figures incapable of being realized were it not for the wide range of the far-reaching technologic improvements that have paralleled the unexampled developments in industry especially during the past half century.

Technology, however, has its limits; it has always to work on raw materials, and therefore can but modify to a degree the essential dependence upon natural resources. Furthermore, technology itself is a dominant factor in the multiplying demand for minerals.

c) The progressive convergence of demand since the turn of the century upon the great available centers of supply is outstanding. Only the big mineralized areas of mammoth deposits where nature has concentrated the really large storehouses of minerals are adequate to supply present and future world demand for minerals; furthermore, the mineralized areas capable of meeting the huge demands of the present are comparatively few for the world as a whole. As noted elsewhere, the rise of minerals to a dominant place in world economy is recent; the strategic importance of minerals was not generally appreciated until the Great War, perhaps is not fully realized and certainly is not generally understood even at the present time.

These comparatively few mineralized areas dominate the world's minerals situation en masse, as well as with respect to supplies of individual minerals. And in many cases, it may be noted, these mineralized areas are to all intents and purposes national monopolies.

d) To satisfy the magnitude of world demand means necessarily that minerals must flow across political boundaries.

e) Commercial control has become so extensive and so well organized in great combinations as to over-ride political boundaries.

f) The resulting tendency is therefore toward integration of producing operations and concentration upon a relatively few of the large sources of supply capable of meeting the demands, actual and potential. The natural conditions concerned are such as to make feasible, in fact they are "peculiarly favorable" to the unified operation in a concentrated manner of the great units of mineral development. It is necessary in any case to control only the few but essential sources of supply of the several necessary minerals. These alone will play the dominating part in the future.

g) In consequence, the mineral resources of the world have come to be more and more recognized by students of economic development and international relations as a dominant factor of our physical environment, so much so as indeed to figure prominently in the consciousness of nations, whether in war or in peace.

Summing up, it is apparent that in mineral economics per se, integration, coördination, and concentration are the uppermost factors in the control of mineral development. As to the political aspects involved, the tendencies are in exactly the opposite direction. The policies of economic nationalism in war and in peace are illustrative of the impelling forces to get minerals. We are witnessing today the results of the impact and conflict of two opposing forces, both powerful, to control the world's mineral resources:

a) On the one hand is the rapidly growing world demand for minerals which knows no political boundaries; this means a forcing of coördination and integration that demand may be adequately supplied. This is an expression of the necessity to insure a continuous flow of supplies from nature's erratically distributed mineral resources. For the modern mineral industry is necessarily in the nature of the case international in character. On the other hand, they are:

b) The nationalistic forces, born in part of fear (for no nation is assured of a steady supply of raw materials from abroad) which seek to partition these resources and to control their development in order to sustain national gain and security; these, however, are but symptoms of a deeper problem—that of the rising mineral national consciousness, the desire to be self-sustaining in minerals at any cost. Like other nationalist policies the tendency is to freeze, to rigidize or eliminate what would be elements making for continuous readjustments to changing conditions.

It may be noted that the United States is the nation most nearly self-contained as to mineral resources—but the United States is dependent upon outside sources for certain essential minerals, such as tin and most of the steel alloys; the United States is the largest owner, the largest producer, the largest consumer of minerals. The British Empire is second. Third is perhaps western and central Europe if all its minerals were pooled; then there are Russia and the Far East.

The present world situation results from attempts on the one hand to pool western and central Europe's min-

erals under one control; and, on the other, to pool the Far East under one control, each case involving greater sea power with the added factor of Russia's attempts to get to the Atlantic through the Baltic window.

As to the larger consequences of this situation, the political struggles, the Great War, the conditions since the Great War, and the Present War, are all too obvious. But what of the situation when the present War shall have been fought out? What can be done better to insure the peace of the world? One thing, however, will remain: the geographic distribution of minerals is the dominant thing; political measures will have to conform or adjust thereto. The basic geographic facts of the situation cannot be emphasized too much by those qualified to do so; wrong-sided emphasis by the non-qualified is likely to muddle a situation, even rendering it more chaotic, as for instance the whole Latin American situation with reference to the United States or vice versa. The challenge is how to adjust ourselves to the impact of what historically is a recently appearing but outstanding feature of our physical environment—that of the enormous importance of minerals to the progress and peace of the world.

Secondary Industrial Centers and Raw Materials Regions

Embraced also in the world's economic geography are secondary industrial centers and raw material producing regions. Economically, both of these groups are under the aegis of the primary industrial centers, dependent upon them for their economic and commercial organization, capital equipment, technology, and the like. These secondary industrial centers and raw material producing regions cannot be discussed here; only a brief outline can be presented.

First, it is apparent that forces involved in the development of secondary industrial centers and of raw material regions emanate from the primary industrial centers on either side of the North Atlantic.

Secondary industrial areas of the heavy industries can be subdivided into those whose products are confined to national boundaries and those whose products enter into the flow of world commerce. Of the former the iron and steel of India may be considered. Important to India, its products do not go beyond the boundaries of India to any important degree. The smaller iron and steel centers of the world are but sub-centers, growing up in the shade of the big centers of the primary industrial regions. It is difficult indeed to set up a new iron and steel industry, with very costly fabrication equipment to provide the multitudinous forms of finished products required by the market in any new region, moreover, many of the required goods, machine tools, highly specialized products, and the like, as well as skilled labor, and not to mention capital, have to be supplied from the already existing centers.

Of industries whose products enter the world wide flow of commerce, it is not the statistics of production that is important but rather the total flow to the centers of consumption. No matter how significant or how strategic these industries are, they perform only under the aegis of the primary industrial centers. This group includes:

1. Oil and oil refining.
2. Heavy chemicals.
3. Pulp and paper.
4. Aluminium.
5. Synthetics.

In addition there are the consumer-following industries, e.g., the cotton textiles, which also are labor-oriented industries.

The raw material regions of the world are characterized by a colonial economy; they are passive regions, economically, dominated by and dependent upon the primary industrial regions; this is so even if these industries are located within the boundaries of the primary industrial regions. By and large the raw material regions are characterized by specialized undertakings reflecting adaptations to particular environments; they include:

1. Mineral producing regions, other than the big producing areas of coal and iron.

2. The areas growing perennial crops, as of the Tropics; livestock production on a broad scale also comes in this category. The scale of operations is such as to require considerable or even vast sums of capital. Here also may be noted the vast potentials of the Tropics —waiting to be subjugated.

3. The regions characterized by annual crops, dominated by bulk products, such as the grains and plant fibers, in large areas specifically adapted to these crops. These lines of production are characterized by a vast number of producers; the regions offer great potentials for the furthering of the output by bulk production, e.g. by estate farming. The essential problem to be considered with reference to the growing of the large annual crops are how competitive conditions are generated and sustained.

Elmer H. Johnson

Economic Geography Notes

Dow Chemical Plant

Market requirements for the light metals have grown enormously since the first successful commercial production of aluminium only a half century ago. Magnesium is now coming into the picture of light metals in a big way. The Bureau of Mines is authority for the statement: "Total manufacturers of structural and non-structural products of magnesium metal and magnesium-rich alloys increased 77 per cent in 1939 compared with 1938. Most of the increase was accounted for by structural products, the sales of which increased 84 per cent over those of 1938."

The latest project to produce magnesium is that of the Dow Chemical Company in its projected new plant at

Freeport, Texas. Work has already begun on a $5,000,000 plant on the coast at Freeport; it has not been announced that a rolling mill will be built at Freeport, although Dow is constructing one at the headquarters plant at Midland, Michigan. The raw material used will be magnesium chloride in sea-water in which magnesium occurs in minute quantities, containing only a tenth of one per cent of magnesium, and said probably to be the lowest-grade ore, other than radium deposits, to be used in commercial production.

The magnesium will be extracted by electrolytic methods. Dow's reason for locating on this site has been given as the "availability of an unlimited supply of raw materials." Adequate fuel supplies in the form of natural gas was no doubt an important factor.

The Freeport plant, scheduled for completion late in the summer will double Dow's present capacity. Dow is an experienced producer in the production of magnesium, having an annual production at present of more than 12,000,000 pounds annually from its brine wells at Midland, Michigan; Dow is also an experienced producer of bromine from sea water, at the plant at Cure Beach, North Carolina, owned in partnership with the Ethyl Gasoline Corporation.

The chief use of magnesium, which is 30 per cent lighter than aluminium, is as a component of Dowmetal. Dowmetal is the lightest structural metal used commercially; it is being used increasingly in airplane motors, vacuum cleaners, and in high-speed hand tools.

According to the Bureau of Mines "The greatly increased use of magnesium in the aircraft industry during 1939 reflected not only the enlarged aircraft production but also the fact that magnesium is being employed in many more parts of the airplane. The year witnessed the first production in the United States of magnesium alloy sheet for interior cabin parts of airplane transports . . . The largest consumption of magnesium alloy, however, was in the form of castings, chiefly sand castings. . . . There also was a broader adoption of magnesium products in 1939 by certain non-aircraft industries such as textiles, sewing machines, automobiles, conveying equipment, typewriters and other business machines, and heavy machinery."

The spectacular growth of magnesium production is indicated by Dow's production, as Dow is at present the only important producer of metallic magnesium in the United States. In 1928 Dow started commercial production of magnesium with an output of 20,000 pounds; at that time Dow was producing but a small part of the domestic magnesium of the United States. By 1937 output had grown to 4,500,000 pounds, which was nearly all the domestic production of the United States. The Freeport plant will give Dow an annual capacity of about 25,000,000 pounds.

At Freeport Dow has purchased 800 acres of land, with a frontage of 3 miles on the harbor. It would be surprising, indeed, if magnesium is the only product planned by the Dow organization in Texas.

Buna Synthetic Rubber Plant at Baton Rouge, Louisiana

Research conscious Standard Oil Development Company and Standard Oil Company of Louisiana, both subsidiaries of Standard Oil Company of New Jersey, are to build a plant at Baton Rouge, Louisiana, to produce Buna. Buna is a synthetic rubber which has been successfully developed in Germany. Standard Oil of New Jersey's research connections with Germany's big I. G. Farbenindustrie makes the process available in the United States. The details by which the process is made available in the United States have not been announced. German exports of Buna to the United States have of course been cut off since the beginning of the War. The Baton Rouge plant with a daily capacity of 10,000 pounds is expected to begin operations in the latter part of 1940.

The first product made at the Baton Rouge plant is to be Buna-N (Perbunan) which will compete with neoprene, one of the synthetic rubbers made by du Pont. The United States imported something less than 350,000 pounds of Buna-N from Germany in 1938.

But Standard Oil of New Jersey also has the patent rights for Buna-S which in Germany is used for making tires. Buna-S is said to be from 20 to 30 per cent longer wearing than natural rubber but is about four times as expensive. In Germany Buna is made from coal gases and limestone; however, both Buna-N and Buna-S can be made from petroleum refinery gases, which Germany lacks.

Owing to the large supplies of such gases in the United States, it is to be expected that the costs of production of Buna in this country will be substantially lowered.

Reflecting the interest of tire manufactures in synthetic rubber, the Firestone Tire and Rubber Company has secured a license from Standard Oil Development Company to manufacture Buna. Details of the plans of tire producers in the United States have not been made available but the changing world situation as to plantation rubber in Southeastern Asia has greatly stimulated the interest in synthetic rubber. For a long time the crude rubber supplies of the world have been so strongly organized as to maintain cartel-controlled prices for raw rubber.

It may be noted here that the United States is by far the largest consumer of rubber, as it is of raw silk and tin—all obtained, in large part, from the Far East. The recent developments in such synthetics as Nylon and Vinyl are expected to relieve the United States from its dependency upon Japanese silk; it may further be noted that Vinyl is being synthesized from natural gas, water, air, and salt. The interests concerned in making synthetic rubber apparently are going to push this development rapidly; and as to tin, unquestionably the great reserves of the mineralized area of the Andean plateau of Bolivia will become the scene of greater developments in the near future.

Expansion of Ethyl Gasoline Plant at Baton Rouge

Ethyl Gasoline Corporation is to expand considerably its manufacturing facilities at Baton Rouge, Louisiana. A $4,000,000 plant expansion program will include a unit for manufacturing tetra-ethyl lead, an additional ethyl chloride plant, and increased capacity to manufacture chlorine gas and metallic sodium.

This project is under the supervision of the du Pont organization.

World Pulp and the War

Within a week after the German invasion of Norway kraft pulp has advanced $10 a ton; between the outbreak of the war in September and the beginning of the war in Norway kraft prices in the New York area have practically doubled.

Sulphite pulp from Canada and the United States is likely to be called upon by markets formerly supplied in whole or in part from Scandinavia.

Elmer H. Johnson

The Texas Statistical Council

The second meeting of the Texas Statistical Council was held at The University of Texas, Austin, Texas, on April 5, 1940, with Mr. Waldo B. Little, president of the Council, presiding.

The morning session, held in the Hogg Memorial Auditorium, opened with a discussion of the Constitution and By-Laws as prepared and presented by Mr. Little since the first meeting which was held in December, 1939. After the reading and discussing of each article and section, the Constitution and By-Laws were adopted. Membership in this Council is not confined to professional statisticians, but includes economists, business executives, research directors, government officials, university and college professors, and other persons who are interested in the application of statistical methods to practical problems, in the development of more useful methods, and in the improvement of basic statistical data.

After the close of the business session, Dr. A. B. Cox, Director of the Bureau of Business Research, spoke on "Texas' Cotton Future and the World Cotton Situation as it Pertains to Texas." His discussion was based on statistical data in the form of tables on world production and consumption of cotton. These ten tables illustrate the position of Texas cotton production to world production and show the trends of production and consumption during recent years. Dr. Cox stated that cotton now accounts for only about 34 per cent of the total farm cash income in Texas; that this State is faced with very definite problems of readjustment; and that no one thing will solve these problems. The tables used in Dr. Cox's discussion may be obtained upon request.

Dr. T. R. Hamilton of Texas A. & M. College, spoke on "Research for Texas Agriculture and Industry of Texas A. & M. College." He outlined briefly the work of the Agricultural Experiment Station of A. & M. College. He stated that the Experiment Station is concerned with the development of the State's agricultural resources and agencies; and that in serving this function it has a direct effect upon the development of industry and commerce.

The Division of Farm and Ranch Economics, one of the twenty main divisions at A. & M. College, is at present giving special attention to a study of the trend of taxes on farm and ranch real estate in Texas. This project is designed to study the administration of state and local taxes as they affect the farmer. Along with the tax study Dr. Hamilton stated that Mr. Gabbard and Mr. Bradshaw are investigating the relations between state and county units, and as a result of this research, it is hoped that definite recommendations can be made concerning a proper organization for the supervision of local finance in Texas.

Another survey which is being conducted by A. & M. College in coöperation with the U. S. Department of Agriculture is a program for agricultural land use planning by counties. The purposes of agricultural land use planning are to improve agriculture through conservation of land resources, to obtain recommendations from people as to good land use in each type of farming area in each county, and to provide the basis for harmonizing the various state and Federal programs for the improvement of agriculture. Dr. Hamilton outlined in some detail the procedure in this type of research.

From first-hand data obtained from the cotton gins, Dr. Paulson of A. & M. College, has prepared a study of coöperative cotton ginning in Texas. Dr. Paulson has set up tables showing the expected cost, according to the different items of cost for a given investment and volume by type of power and area.

Dr. Hamilton also described Circular No. 80 of the Experiment Station. The data presented in this circular cover a wide range of agricultural topics including farm value, tenure by type-of-farming areas, production, yield, etc.

At the afternoon session Mr. Elmer H. Johnson of the Bureau of Business Research, The University of Texas, spoke on "The Relation of World Economy to Natural Resources." He traced briefly the development of modern industrial centers, explained the principal factors that have lead to their location and growth, and illustrated some of the effects of their economic superiority. Mr. Johnson's address as delivered at this meeting outlined the broader discussion which will appear as a series of articles in the Texas Business Review, the first of which appears in this issue.

During the general discussion concerning statistical material now available, it was suggested that Miss Margaret Kirkner prepare a resumé for the next meeting of the Council of the statistical material already compiled by the W. P. A. Mr. Garth Daniel was asked to report on similar material from certain other governmental agencies. The Cotton Committee, of which Mr. Glenn D. Scott is chairman, was asked to assimilate all the information available bearing on the future of world cotton production, consumption, and price structure and prepare a report indicating the effect upon Texas economy.

The following committees were appointed to serve for the current year: *Programs*, Mr. W. N. Finnegan, Chairman, Dr. F. A. Buechel, and Dr. T. R. Hamilton; *Membership*, Dr. Watrous H. Irons, Chairman, Mr. Harold M. Young, and Mr. Millard Dilg; *Amendments*, Mr.

George Culler, Chairman, Mr. W. H. Kittrell, Jr., and Mr. L. J. Logan; *Publicity*, Mr. Stuart McGregor, Chairman, Mrs. Clara H. Lewis, and Mr. E. L. Struth; *Cotton*, Mr. Glenn D. Scott, Chairman, Dr. A. B. Cox, Mr. L. P. Gabbard, and Mr. Henry L. Rasor.

A mimeographed copy of the complete report of the meeting will be sent upon request to those who attended the meeting and to others interested. The revised copy of the Constitution and By-Laws together with the list of officers and Board of Directors serving for the present year have also been prepared for distribution.

CLARA H. LEWIS,
Assistant Secretary

Cotton Situation

The cotton situation presents a challenge of major importance to the people of Texas. During the five years 1924–1828 inclusive Texas produced an average of 32.2 per cent of all the cotton grown in the United States; during the next five years, 1929–1933, it produced an average of 30.9 per cent of the national crop; and during the next five years, 1934–1938 Texas produced only 26 per cent of United States production. During 1939 Texas production was only 24 per cent of United States production.

Why has Texas lost so heavily in relative importance in cotton production in the United States in recent years? This question cannot be answered categorically for the state as a whole because Texas presents almost as wide a range of soils and climatic conditions for growing cotton as exists in the nation as a whole. Fortunately, Texas, largely because of the work of Mr. Elmer H. Johnson in coöperation with the Crop Reporting Board, has been divided into relatively homogeneous districts in relation to agricultural production. The district figures on cotton acreage and production gathered and published by the Crop Reporting Board enable us more effectively to locate the areas under greatest distress in cotton production in Texas.

As indicated on the map of Texas showing the natural regions of the State, Texas is divided into ten districts with district No. I divided into two parts, I–N and I–S. Table I shows the percentages of the Texas crop produced in each of these districts during the six years ending 1933 and the six years ending 1939. It also shows the percentage of the State's planted acreage in each district for the two periods as well as the average yield per acre for the two periods.

The outstanding facts revealed by the data on changes in production as revealed in column three contrasted with column four are the big increases in the proportion of the Texas crop being produced in district I–S and the less striking increases in districts 1–N, 6, and 10.

The greatest losses in percentage of the Texas crop since 1928 have occurred in districts 2, 8, and 3, though district 9, 5, 4, and 7 also show decreases.

Production of cotton in any district is a result of acreage times yield per acre. The data therefore on acreage planted and yield per acre are of vital importance in giving us a picture of change in proportion of cotton produced by different districts.

The average reduction in acreage planted to cotton in Texas during the six years ending 1939 as compared with average for the six years ending 1933 was 32.55 per cent. The greatest percentage decline in acreage for any district was 40.25 per cent in district 5, and the least was 10.86 per cent in district 1–S. Districts with declines in acreage greater than average were 2, 3, 4, 5, 7, and 8; acreage in all other districts declined less than the average decline for the State as a whole.

There is a very wide variation in the average yield per acre by districts in Texas and within each district from year to year. The average yield of lint cotton per acre in Texas during the six years ending 1933 was 136.3 pounds; the average yield for the State during the six years ending 1939 was 143.1 pounds an increase of 4.99 per cent. There were five districts, 1–N, 4, 5, 6, and 10 which secured increased average yields per acre during the six years ending 1939 as compared with the six years ending 1933. The greatest increase in average yield per acre was in district 6 with 47.45 per cent followed by district 1–S with 24.96 per cent, district 10 with 20.96 per cent and district 5 with 14.74 per cent. The district with the greatest decrease in average yield per acre was number 3 with 18.13 per cent followed by 1–N with 11.43 per cent and 9 with 9.32 per cent.

The data for the past twelve years presented here do not adequately picture the situation in some districts. In district 3, e.g., maximum production was reached in 1906 when it produced 534,000 bales compared with an average of only 67,300 bales for the past six years. The 1906 yield was not especially exceptional for in 1908 production was 498,000 bales. These reductions in production from 1906 to the present are results of declines in both acreage and yield per acre. Why have yields per acre and acreage been so drastically cut in District 3?

District 7 is another area that has had similar cotton experience to District 3. It produced more cotton in 1906 than in any one of the past ten years, and more than twice as much as the average during the past six years.

District 4 produced 1,700,000 bales in 1906 and its average during the past six years has been 928,000 bales, but in the years 1928–33 average production was 1,324,000 bales. This area likewise shows a rather marked decrease in production. Why?

District 5 produced 612,000 bales of cotton in 1906. Its average production for the six years ending 1933 was 743,000 bales, and its production for the six years ending 1939 was 510,000 bales. Average acreage reduction in district 5 during the past six years as compared with the six years ending 1933 was 40.25 per cent, the greatest in any district and yields per acre showed an average increase of 14.74 per cent. Why these changes? District 5 has held up production better than 3 and 4. Why?

District 8 is another area that has shown reductions in productions above average. In 1906 this district produced 700,000 bales of cotton and the big production counties at present such as Nueces and Refugio were

producing very little cotton then. Travis County in 1906 produced 72,636 bales of cotton, and in 1939 only 13,300 bales. Other counties showing very large decreases in this district are Bastrop, 35,000 bales in 1906 to 6,400 in 1939; Caldwell, 59,000 to 8,400 bales; Comal, 14,800 to 280 bales. What explanations are there for this drastic decline in production in this district?

The foregoing discussion raises many questions of vital importance to those interested in the cotton industry of Texas. What are the answers?

The following is a brief discussion of causes of declines in cotton production, by Mr. Elmer H. Johnson.

A. B. Cox

To discuss adequately the changes in cotton acreage and production in the various major regions of Texas is of course not an impossible proposition; to discuss these changes and the reasons for them would, however, require more data and time than are at my disposal. At a later time I propose to discuss the cotton situation of the United States with reference to the changes in other parts of the cotton growing world and the changing situation of the several parts of the American Cotton Belt.

For some time prior to 1929 and since 1929 five crop reporting districts of Texas have accounted for about 84 per cent of the state's acreage and the same proportion of the production. These districts are 4, the northern Black Prairies; 2, the Red Beds Plains; 5, the East Texas Timbered region; 8, the Southern Black Prairies; and 1–S, the southern High Plains.

The East Texas Timbered region has a humid climate and it is characterized by sandy soils; it is a section generally of small farms, and using in some counties comparatively heavy applications of commercial fertilizers. Although yields have been increased, their average remains below the yields of the southern High Plains, the northern Black Prairies and the Coastal Prairies.

TABLE I

Percentage of cotton acreage and cotton production in Texas by crop reporting districts as shown by the average for the six years 1928–1933 and for 1934–1939. This table also shows the average yield per acre of cotton by districts for the two six-year periods.

Districts	Percentage of Acreage by Districts Average		Percentage of Production Average		Average Yield Per Acre	
	1928–1933	1934–1939	1928–1933	1934–1939	1928–1933	1934–1939
1–N	1.6	2.1	1.5	1.7	131.2	116.2
1–S	8.2	10.9	7.7	12.2	128.2	160.2
2	18.8	18.3	17.2	15.1	124.6	117.6
3	3.8	3.6	2.8	2.1	100.4	82.2
4	26.9	26.2	29.1	28.7	147.3	156.9
5	17.2	15.2	16.3	15.8	129.6	148.7
6	.5	.6	1.2	2.0	319.5	471.1
7	2.8	2.7	2.3	1.9	110.9	104.3
8	13.2	12.9	14.1	12.4	145.7	137.5
9	3.3	3.4	4.6	4.1	188.8	171.2
10	3.7	4.1	3.2	4.0	116.4	140.8
STATE	100.0	100.0	100.0	100.0	136.3	143.1

The other major cotton districts of the State occur in the grasslands sections of Texas, whose arable lands are inherently fertile, owing to the factors concerned in the formation of their soils.

The Black Prairies comprise the most famous of these regions; large production in these rich black soils, with the coming of railways and the sod plow to the northern Black Prairies made Texas back in the 1880's the premier cotton growing state in America.

The Red Beds Plains and the southern High Plains have been important cotton growing lands only since the turn of the century; in fact, much of their increase in cotton production has come since 1910.

The Prairies and the Plains of Texas, in spite of topographic variations, are dominantly rolling lands whose smooth contours are particularly favorable to the efficient use of power machinery, and much of the area, especially in West Texas is farmed in comparatively large units.

There have been changes in the acreage and production of these grasslands regions and the East Texas Timbered region; but as previously noted, these regions in the aggregate account for about 84 per cent of the state's acreage and a similar percentage of the total production. This is the essential fact to be kept in mind in any discussion of the cotton situation in Texas.

District 6, the Trans-Pecos country, grows cotton by irrigation. It has the smallest acreage of any of the Texas crop reporting districts; due, however, to the large yields—which is a function of irrigation and rich soils—this district belongs in a category to itself.

In the other crop reporting districts, 1–N, the northern High Plains; 3, dominated by the "hard" rocks of the Pennsylvanian and the deep sands of the Lower Cretaceous; 7, the Edwards Plateau; 9, the humid Coastal Prairies; and 10, the South Texas Plains, including the Lower Rio Grande Valley—in these regions cotton growing is subsidiary or is becoming subsidiary to other agricultural or range enterprises.

In the westward march of cotton across the State, District 3 was during the first decade of the century, an important cotton growing section. Much of the cotton was grown on sands underlain with fairly heavy clays. The sandy surface soil contained a fairly high content of organic matter, a remnant from the growth of grasses for years past. Continuous cropping of these sandy lands made for the destruction of the organic matter and the presence of a tilled crop soon allowed erosion to carry off the surface soil.

In the other lesser important cotton districts, changes in the form of land utilization have been responsible for the changes in their cotton production.

We may expect to see changes of considerable importance in the major cotton growing regions of Texas; that they will continue to dominate the picture in the state's cotton production is to be expected.

Elmer H. Johnson

EMPLOYMENT AND PAY ROLLS IN TEXAS

MARCH, 1940

	Estimated Number of Workers Employed*	Percentage Change from Feb. 1940	Percentage Change from Mar. 1939	Estimated Amount of Weekly Pay Roll	Percentage Change from Feb. 1940	Percentage Change from Mar. 1939
Manufacturing						
All Manufacturing Industries	132,468	+ 0.6	+ 6.1	$2,605,517	+ 2.5	+ 8.6
Food Products						
Baking	6,442	+ 0.1	+ 6.0	143,175	+ 0.5	+18.5
Carbonated Beverages	2,799	+ 8.7	+14.3	62,271	+10.2	+14.6
Confectionery	787	— 1.7	+ 4.2	8,536	+ 7.2	+12.2
Flour Milling	1,574	+ 3.2	— 1.2	33,002	+ 1.0	+ 7.3
Ice Cream	875	+14.1	+ 9.0	14,860	+13.0	+ 2.6
Meat Packing	3,890	+ 1.0	+ 5.7	85,415	+ 4.2	+ 7.8
Textiles						
Cotton Textile Mills	6,155	— 2.0	+ 3.3	82,744	— 4.7	+19.2
Men's Work Clothing	3,902	— 1.2	— 3.6	39,928	— 0.6	+ 4.9
Forest Products						
Furniture	1,659	+ 4.2	+15.8	38,651	+ 7.9	+49.9
Planing Mills	1,994	+ 6.8	+11.0	31,253	— 4.5	+ 1.1
Saw Mills	15,846	+ 1.3	+16.1	195,080	+ 5.6	+21.9
Paper Products	562	— 2.2	+ 4.4	8,204	+ 1.6	+ 0.5
Printing and Publishing						
Commercial Printing	2,221	+ 1.8	— 6.2	50,702	+ 3.2	— 5.4
Newspaper Publishing	4,526	+ 0.4	+ 3.5	116,947	+ 3.2	+ 3.7
Chemical Products						
Cotton Oil Mills	1,998	—22.1	—24.3	22,186	—24.2	—21.0
Petroleum Refining	20,270	— 0.1	+ 4.6	653,301	+ 1.2	+ 3.1
Stone and Clay Products						
Brick and Tile	1,735	+ 3.6	— 9.7	21,754	+14.2	—13.6
Cement	957	— 6.0	+ 4.5	25,277	+10.2	+ 9.6
Iron and Steel Products						
Foundries and Machine Shops	11,336	+ 4.1	+10.8	310,021	+ 5.6	+13.0
Structural and Ornamental Iron	1,908	— 1.8	+ 8.1	37,677	+ 4.1	+23.0
Nonmanufacturing						
Crude Petroleum Production	31,560	+ 0.5	+ 2.7	982,925	— 1.3	†
Quarrying	‡	+ 5.1	+ 1.5	‡	— 2.1	+ 4.4
Public Utilities	‡	+ 0.4	+ 4.1	‡	+ 0.7	+ 5.6
Retail Trade	188,057	+ 6.7	+ 9.3	3,160,296	+ 5.3	+ 9.5
Wholesale Trade	58,983	+ 3.6	+ 3.1	1,673,107	+ 2.4	+ 7.7
Dyeing and Cleaning	2,272	— 0.6	— 4.2	32,927	+ 0.7	— 0.3
Hotels	15,158	+ 1.9	— 0.9	171,521	+ 1.0	+ 6.7
Power Laundries	9,340	— 0.7	+ 1.5	113,513	+ 0.7	+ 1.6

CHANGES IN EMPLOYMENT AND PAY ROLLS IN SELECTED CITIES AND FOR THE STATE

	Employment Percentage Change		Pay Rolls Percentage Change	
	Feb. 1940 to Mar. 1940	Mar. 1939 to Mar. 1940	Feb. 1940 to Mar. 1940	Mar. 1939 to Mar. 1940
Abilene	+ 8.1	—13.3	+ 6.9	— 7.8
Amarillo	— 4.5	+28.1	— 3.6	+38.8
Austin	— 0.5	—12.3	— 0.5	— 1.5
Beaumont	+ 0.3	+ 2.6	+ 2.3	+ 0.3
Dallas	+ 0.9	— 1.4	+ 1.9	+ 2.2
El Paso	+ 1.0	+ 5.5	— 0.2	+15.4
Fort Worth	+ 5.9	+ 3.7	+ 6.1	+ 6.1
Galveston	— 0.9	— 9.2	— 5.5	— 2.7
Houston	+ 1.5	+12.6	+ 3.9	+16.5
Port Arthur	— 0.2	+10.7	+ 0.8	+ 9.1
San Antonio	+ 4.5	— 1.4	+ 6.2	+ 3.2
Sherman	+ 1.4	+12.7	+ 1.5	+24.2
Waco	+ 4.9	+11.1	+ 3.8	+13.7
Wichita Falls	— 0.1	—16.4	+ 0.6	—11.3
STATE	+ 0.8	+ 4.2	+ 1.7	+ 5.8

*Does not include proprietors, firm members, officers of corporations, or other principal executives. Factory employment excludes also office, sales, technical, and professional personnel.
†No change.
‡Not available.
Estimated number of workers and estimated weekly pay roll for manufacturing industries adjusted to 1937 Census of Manufactures.
Prepared from reports from representative Texas establishments to the Bureau of Business Research, coöperating with the United States Bureau of Labor Statistics.

MARCH CREDIT RATIOS IN TEXAS RETAIL STORES

(Expressed in Per Cent)

	Number of Stores Reporting	Ratio of Credit Sales to Net Sales 1940	Ratio of Credit Sales to Net Sales 1939	Ratio of Collections to Outstandings 1940	Ratio of Collections to Outstandings 1939	Ratio of Credit Salaries to Credit Sales 1940	Ratio of Credit Salaries to Credit Sales 1939
All Stores	70	66.2	66.7	41.4	38.9	1.0	1.2
Stores Grouped by Cities:							
Abilene	4	62.6	60.5	32.3	30.7	1.9	2.0
Austin	6	60.4	59.6	47.7	47.1	1.0	1.0
Beaumont	3	69.6	69.4	40.0	43.8	1.5	1.4
Dallas	10	72.6	73.3	45.5	39.7	0.7	1.2
Fort Worth	6	65.3	64.3	36.7	35.0	1.0	1.2
Houston	7	63.5	64.5	40.5	40.4	1.4	1.6
San Antonio	7	60.7	63.4	43.8	44.2	1.0	0.8
Waco	5	64.6	64.2	30.5	29.5	1.3	1.4
All Others	22	60.7	60.9	37.2	37.2	1.3	1.5
Stores Grouped According to Type of Store:							
Department Stores (Annual Volume Over $500,000)	20	65.5	66.9	44.6	39.8	1.0	1.2
Department Stores (Annual Volume Under $500,000)	13	61.9	62.1	34.2	34.1	1.6	2.0
Dry Goods–Apparel Stores	5	64.7	62.0	39.2	38.1	1.7	1.5
Women's Specialty Shops	15	67.7	67.3	35.4	35.9	0.6	0.9
Men's Clothing Stores	17	70.5	67.5	39.2	38.2	1.5	1.9
Stores Grouped According to Volume of Net Sales During 1939:							
Over $2,500,000	9	69.1	68.3	41.7	40.0	0.8	1.1
$2,500,000 down to $1,000,000	11	63.6	64.0	42.7	39.5	1.1	1.2
$1,000,000 down to $500,000	10	61.4	60.9	40.5	38.3	1.4	1.4
$500,000 down to $100,000	30	61.1	61.0	39.5	39.7	1.4	1.4
Less than $100,000	10	58.5	63.6	36.9	38.1	3.1	3.0

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.

TEXAS CHARTERS

	Mar. 1940	Mar. 1939	Feb. 1940	First Quarter 1940	First Quarter 1939
Domestic Corporations:					
Capitalization*	$1,847	$2,337	$3,010	$6,912	$5,206
Number	149	151	126	418	379
Classification of new corporations:					
Banking–Finance	10	6	3	17	12
Manufacturing	30	22	26	82	54
Merchandising	35	36	50	120	91
Oil	25	29	14	62	70
Public Service	1	---	---	3	---
Real Estate–Building	17	15	9	35	40
Transportation	6	5	3	18	14
All Others	25	38	21	81	98
Number capitalized at less than $5,000	61	63	47	170	147
Number capitalized at $100,000 or more	2	4	1	6	10
Foreign Corporations (Number)	26	36	15	68	94

*In thousands.

NOTE: Compiled from records of the Secretary of State.

CEMENT

(In Thousands of Barrels)

	Mar. 1940	Mar. 1939	Feb. 1940	First Quarter 1940	First Quarter 1939
Texas Plants:					
Production	589	499	477	1,511	1,742
Shipments	678	697	533	1,661	1,870
Stocks	761	655	850	------	------
United States:					
Production	7,917	8,171	5,041	19,163	18,978
Shipments	7,715	8,467	4,905	16,509	19,150
Stocks	26,098	23,796	25,895	------	------
Capacity Operated	36.3%	37.4%	24.7%	------	------

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

MARCH CARLOAD MOVEMENT OF POULTRY AND EGGS

Shipments from Texas Stations

Destination*	Cars of Poultry: Live Chickens Mar. 1940	Live Chickens Mar. 1939	Live Turkeys Mar. 1940	Live Turkeys Mar. 1939	Dressed Chickens Mar. 1940	Dressed Chickens Mar. 1939	Dressed Turkeys Mar. 1940	Dressed Turkeys Mar. 1939	Cars of Eggs† Mar. 1940	Cars of Eggs† Mar. 1939
TOTAL	6	5	---	1	58	54	8	3	101.0	118.0
Intrastate	---	1	---	---	---	2	---	---	14.5	32.0
Interstate	6	4	---	1	58	52	8	3	86.5	86.0
Origin	**Receipts at Texas Stations**									
TOTAL	---	---	---	---	---	---	---	2	22.5	28.0
Intrastate	---	---	---	---	---	---	---	2	21.0	25.0
Interstate	---	---	---	---	---	---	---	---	1.5	3.0

*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 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.

COMMODITY PRICES

	March 1940	March 1939	February 1940
WHOLESALE PRICES:			
U. S. Bureau of Labor Statistics (1936 = 100)	78.4	76.7	78.7
The Annalist (1926 = 100)	80.9	78.9	81.6
FARM PRICES:			
U. S. Bureau of Labor Statistics (1926 = 100)	67.9	65.8	68.7
RETAIL PRICES:			
Food (U. S. Bureau of Labor Statistics, 1923–25 = 100)	77.1*	76.4	78.1
Department Stores (Fairchild's Publications, Jan. 1931 = 100)	92.8	89.1	92.6

*Preliminary.

BANKING STATISTICS

(In Millions of Dollars)

	March, 1940 Dallas District	March, 1940 United States	March, 1939 Dallas District	March, 1939 United States	February, 1940 Dallas District	February, 1940 United States
Debits to individual accounts	$1,067*	$44,449*	$ 764	$32,844	$ 809	$30,698
Condition of reporting member banks on—	April 3, 1940		March 29, 1939		February 28, 1940	
ASSETS:						
Loans and investments—total	531	23,315	504	21,579	535	23,268
Loans—total	269	8,649	245	8,191	271	8,528
Commercial, industrial, and agricultural loans	177	4,414	161	3,814	180	4,324
Open market paper	2	337	1	305	2	332
Loans to brokers and dealers in securities	5	625	3	764	3	609
Other loans for purchasing or carrying securities	13	476	14	531	14	478
Real estate loans	22	1,185	20	1,136	22	1,185
Loans to banks	—	51	—	94	—	52
Other loans	50	1,561	46	1,547	50	1,548
Treasury Bills	18	509	29	286	19	647
Treasury Notes	42	1,821	50	1,997	44	1,735
U.S. Bonds	93	6,518	79	5,813	92	6,469
Obligations fully guaranteed by U.S. Gov't	50	2,380	48	2,026	51	2,421
Other securities	59	3,438	53	3,266	58	3,468
Reserve with Federal Reserve Bank	132	10,437	112	7,515	131	10,390
Cash in vault	11	452	11	424	12	480
Balances with domestic banks	289	3,299	232	2,579	292	3,104
Other assets—net	29	1,215	29	1,272	29	1,261
LIABILITIES:						
Demand deposits—adjusted	470	19,175	432	15,991	472	19,414
Time deposits	136	5,355	137	5,217	135	5,290
U.S. Government deposits	31	580	34	629	31	571
Inter-bank deposits:						
Domestic banks	263	8,424	197	6,466	269	8,085
Foreign banks	1	726	—	613	1	732
Borrowings	—	1	—	3	—	—
Other liabilities	4	725	5	766	4	692
Capital account	87	3,732	83	3,684	87	3,719

NOTE: From Federal Reserve Board.
*Five weeks.

PURCHASES OF SAVINGS BONDS

	Mar. 1940	Mar. 1939	Jan. 1-Apr. 1 1940	Jan. 1-Apr. 1 1939
Abilene	$ 31,594	$ 5,213	$ 120,075	$ 43,705
Amarillo	19,950*	†	135,019*	†
Austin	56,419	31,331	222,657	111,881
Beaumont	69,619	83,175	264,142	188,757
Big Spring	4,013	2,531	56,663	28,294
Brownsville	10,031	12,731	33,994	27,506
Brownwood	4,369	9,019	32,156	27,507
Dallas	312,056	240,131	1,133,419	825,675
Del Rio	2,475	150	12,375	1,069
Denison	18,544	4,612	68,776	49,462
El Paso	78,169	43,613	384,638	324,619
Fort Worth	128,175	115,969	313,346	322,438
Galveston	38,100	15,619	175,256	143,044
Gladewater	2,231	5,363	60,113	48,620
Harlingen	12,900	3,413	29,981	22,220
Kenedy	825	19	9,206	2,081
Longview	12,038	17,588	101,419	95,851
Marshall	11,400	6,769	114,337	18,226
McAllen	6,075	4,313	28,387	17,813
Odessa	3,018	18,750	24,543*	†
Palestine	9,787	14,494	44,006	45,206
Pampa	10,307	788	19,645	2,888
Plainview	10,500	2,494	30,431	22,932
Port Arthur	26,813	16,781	107,588	59,006
San Angelo	44,156	22,256	98,775	61,368
San Antonio	157,856	146,438	802,050	462,432
San Benito	9,825	431	19,819	10,163
Sherman	2,419	14,644	35,963	42,113
Tyler	16,106	13,406	168,337	155,831
Waco	32,378	80,831	322,422	139,762
Wichita Falls	40,369	13,819	256,670	158,093
TOTAL	$1,162,567	$ 946,691	$5,066,646	$3,458,562

*Not included in total.
†Not available.

TEXAS COMMERCIAL FAILURES

	March 1940	Feb.* 1940	March 1939	First Quarter 1940	First Quarter 1939
Number	17	18	37	61	91
Liabilities†	$173	$182	$539	$617	$1,629
Assets†	55	116	244	249	792
Average Liabilities per Failure‡	10	10	15	10	18

*Revised.
†In thousands.
NOTE: From Dun and Bradstreet, Inc.

PERCENTAGE CHANGES IN CONSUMPTION OF ELECTRIC POWER

	March 1940 from March 1939	March 1940 from Fer. 1940	First Quarter 1940 from First Quarter 1939
Commercial	+11.8	— 2.3	+10.7
Industrial	+ 5.9	+ 8.8	+ 0.8
Residential	+ 8.4	— 2.9	+ 7.0
All Other	+19.9	+ 8.0	+15.3
TOTAL	+ 9.4	+ 4.0	+ 5.8

Prepared from reports from 14 electric power companies to The Bureau of Business Research.

LUMBER

(In Board Feet)

	March 1940	March 1939	February 1940
Southern Pine Mills:			
Average Weekly Production per unit	307,340	286,846	271,025
Average Weekly Shipments per unit	300,146	294,660	240,668
Average Unfilled Orders per Unit, End of Month	664,499	705,305	673,697

NOTE: From Southern Pine Association.

POSTAL RECEIPTS

	March 1940	March 1939	February 1940	Jan. 1–April 1 1940	Jan. 1–April 1 1939
Abilene	$ 17,056	$ 18,050	$ 17,158	$ 52,588	$ 51,903
Amarillo	31,750	31,357	29,000	93,151	89,913
Austin	65,602	72,975	64,725	196,579	216,870
Beaumont	27,143	26,807	25,261	80,041	78,852
Big Spring	6,391	5,991	5,200	17,977	17,312
Brownsville	6,550	5,827	5,805	18,891	17,668
Brownwood	5,948	5,381	5,348	17,432	16,666
Childress	2,590	2,543	2,272	7,866	7,505
Cleburne	2,939*	†	3,095*	9,798*	†
Corpus Christi	26,698	25,299	26,096	80,875	72,751
Corsicana	5,322	5,315	5,220	16,458	16,049
Dallas	375,895	381,221	363,063	1,117,859	1,076,750
Del Rio	3,546	3,876	4,147	13,317	11,620
Denison	5,936	5,423	5,381	17,540	15,868
Denton	7,374	6,830	7,817	21,455	22,050
El Paso	40,956	46,840	40,956	128,012	131,238
Fort Worth	148,317	149,416	143,497	434,292	423,454
Galveston	31,860	30,389	31,318	93,528	81,298
Gladewater	2,755	2,713	2,535	8,789	8,282
Graham	2,097	2,169	2,245	6,890	6,942
Harlingen	6,140	6,574	6,364	18,987	18,144
Houston	268,330	261,964	254,170	775,982	725,928
Jacksonville	3,060	2,866	3,104	9,641	9,220
Kenedy	1,104	1,092	1,238	3,837	4,562
Longview	9,202	9,125	8,547	27,808	27,446
Lubbock	17,995	17,671	18,012	56,098	52,950
Lufkin	4,755	4,475	4,665	14,566	12,871
McAllen	5,032	4,487	4,834	15,750	19,894
Marshall	5,955	5,827	5,952	18,359	18,243
Odessa	5,459*	†	5,178*	17,770*	†
Palestine	4,979	4,881	5,254	16,896	17,951
Pampa	6,882	5,835	6,909	21,371	18,399
Plainview	3,888	4,125	3,769	12,588	12,615
Port Arthur	13,720	13,068	12,782	40,173	38,198
San Angelo	12,037	12,783	11,156	35,577	34,789
San Antonio	131,746	128,264	122,887	382,717	359,485
San Benito	2,316*	†	2,563*	7,569*	†
Sherman	7,345	7,783	7,249	22,396	22,381
Snyder	1,544	1,274	1,456	4,831	4,170
Sweetwater	4,987	5,328	4,505	14,849	15,847
Tyler	15,686	16,644	15,421	47,154	48,586
Waco	32,301	34,133	30,787	95,321	101,353
Wichita Falls	24,011	23,919	21,481	69,053	69,932
TOTAL	$ 1,394,485	$ 1,400,540	$ 1,337,586	$ 4,127,494	$ 3,995,955

*Not included in total.
†Not available.
NOTE: Compiled from reports from Texas chambers of commerce to the Bureau of Business Research.

MARCH 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¶	2,913	3,777	766	685	884	866	476	458	5,039	5,786
Total Intrastate Omitting Fort Worth	347	502	107	93	23	56	15	30	492	681
TOTAL SHIPMENTS	3,260	4,279	873	778	907	922	491	488	5,531	6,467

TEXAS CAR-LOT§ SHIPMENTS OF LIVE STOCK, JANUARY 1–APRIL 1

	Cattle		Calves		Hogs		Sheep		Total	
	1940	1939	1940	1939	1940	1939	1940	1939	1940	1939
Total Interstate Plus Fort Worth¶	7,710	10,972	2,242	2,261	2,146	2,204	1,286	1,311	13,384	16,748
Total Intrastate Omitting Fort Worth	989	1,897	302	395	69	150	55	122	1,415	2,564
TOTAL SHIPMENTS	8,699	12,869	2,544	2,656	2,215	2,354	1,341	1,433	14,799	19,312

§Rail-car Basis: Cattle, 30 head per car; calves, 60; hogs, 80; 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.
NOTE: These data are furnished the United States Bureau of Agricultural Economics 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 Bureau of Business Research.

MARCH RETAIL SALES OF INDEPENDENT STORES IN TEXAS

	Number of Firms Reporting	Percentage Change in Dollar Sales Mar. 1940 from Mar. 1939	Mar. 1940 from Feb. 1940	Number of Firms Reporting	Percentage Change Year 1940 from Year 1939
TOTAL TEXAS	1,032	+ 8.5	+26.0	990	+ 6.7
TEXAS STORES GROUPED BY PRODUCING AREAS:					
DISTRICT 1–N	73	+24.9	+34.9	69	+17.4
Amarillo	14	+22.9	+41.8	12	+14.8
Canyon	5	+34.3	+55.7	5	+17.8
Pampa	15	+25.5	+25.7	14	+23.5
Plainview	14	+27.0	+39.0	13	+13.2
All Others	25	+24.3	+37.6	25	+11.6
DISTRICT 1–S	16	+19.3	+34.3	16	+22.5
Big Spring	6	+12.9	+34.5	6	+19.9
Lubbock	5	+22.2	+36.1	5	+24.0
All Others	5	+22.6	+20.2	5	+20.7
DISTRICT 2	81	+11.6	+26.4	77	+13.6
Abilene	15	+10.5	+49.9	14	+ 3.9
Wichita Falls	13	+12.5	+23.4	12	+ 6.6
All Others	53	+11.7	+17.7	51	+21.9
DISTRICT 3	36	− 0.9	+27.2	35	+ 4.5
Brownwood	7	+ 4.4	+42.0	6	− 1.2
Eastland	5	− 8.0	+13.0	5	+ 1.8
All Others	24	− 1.0	+26.4	24	+ 5.4
DISTRICT 4	249	+12.7	+26.8	235	+ 8.1
Cleburne	7	+28.6	+37.3	7	+18.1
Corsicana	7	+20.1	+57.4	7	+ 1.1
Dallas	47	+10.1	+18.7	46	+ 6.6
Denison	9	+31.1	+61.5	9	+20.3
Ennis	6	+34.8	+25.9	6	+31.4
Fort Worth	39	+17.0	+34.2	35	+11.1
Taylor	5	−29.7	+35.2	4	−24.8
Temple	11	+15.2	+36.5	10	+ 7.4
Waco	24	+22.0	+34.2	22	+15.8
All Others	94	+11.1	+38.4	89	+ 5.8
DISTRICT 5	104	+11.1	+34.9	102	+ 6.8
Bryan	7	− 1.2	+10.7	7	+ 7.2
Henderson	5	+ 5.6	+70.4	5	− 4.5
Marshall	9	+11.3	+26.2	9	+ 5.8
Palestine	6	+ 2.9	+13.1	6	+16.1
Tyler	15	+15.8	+41.4	14	+ 3.1
All Others	62	+12.0	+32.2	61	+10.2
DISTRICT 6	32	− 0.2	+17.1	29	+ 8.3
El Paso	21	+ 0.5	+18.4	21	+ 8.5
All Others	11	− 7.8	+ 1.5	8	+ 1.5
DISTRICT 7	51	+ 2.6	+24.1	49	+ 5.2
Brady	7	−14.6	+28.0	6	+ 5.7
San Angelo	12	+12.2	+28.6	12	+ 9.0
All Others	32	− 3.1	+19.1	31	+ 1.2
DISTRICT 8	188	+ 0.7	+25.4	181	− 1.9
Austin	18	− 5.3	+37.1	18	− 8.2
Corpus Christi	11	− 6.4	+ 1.4	11	− 1.8
Cuero	5	+ 1.2	+49.6	5	− 0.2
Lockhart	7	+10.6	+23.2	7	+ 8.8
San Antonio	60	+ 4.1	+26.3	58	− 0.4
San Marcos	7	− 8.7	+ 2.3	7	− 2.5
All Others	80	− 2.4	+18.5	75	− 1.3
DISTRICT 9	146	+19.6	+21.0	143	+ 5.8
Beaumont	21	+16.9	+25.6	21	+14.1
Galveston	19	+ 7.1	+25.1	17	+ 1.8
Houston	46	+ 3.6	+32.3	45	+ 2.0
Port Arthur	15	+21.8	+30.1	15	+13.6
Victoria	7	−10.6	−11.7	7	+ 9.5
All Others	38	+57.6	+ 6.5	38	+13.5
DISTRICT 10	56	+ 3.1	+ 2.0	54	+11.5
Brownsville	9	+ 6.9	+ 8.3	9	+ 6.9
Harlingen	6	− 8.3	−11.2	6	+15.5
All Others	41	+ 6.5	+ 5.6	39	+11.2

NOTE: Prepared from reports from independent retail stores to the Bureau of Business Research, coöperating with the United States Department of Commerce. See map on page 12, March 23, 1940, issue showing crop reporting districts of Texas.

MARCH RETAIL SALES OF INDEPENDENT STORES IN TEXAS

	March, 1940			Year, 1940	
	Number of Firms Reporting	Percentage Change Mar. 1940 from Mar. 1939	Percentage Change Mar. 1940 from Feb. 1940	Number of Firms Reporting	Percentage Change Year 1940 from Year 1939
TEXAS	1,032	+ 8.5	+26.0	990	+ 6.7
STORES GROUPED BY LINE OF GOODS CARRIED:					
APPAREL	111	+17.6	+31.4	108	+ 8.7
Family Clothing Stores	26	+29.8	+71.3	26	+12.0
Men's and Boys' Clothing Stores	41	+22.7	+42.9	39	+ 7.1
Shoe Stores	17	+32.4	+102.5	17	+13.8
Women's Specialty Shops	27	+ 9.7	+11.9	26	+ 8.4
AUTOMOTIVE	111	+11.8	+27.1	108	+11.4
Filling Stations	35	− 1.3	+19.9	33	− 6.2
Motor Vehicle Dealers	76	+12.2	+27.3	75	+14.5
COUNTRY GENERAL AND FARMERS' SUPPLIES	87	+ 2.0	+17.2	82	+ 4.2
DEPARTMENT STORES	58	+ 8.4	+31.2	58	+ 5.6
DRUG STORES	116	+ 2.5	+ 3.5	110	+ 6.5
DRY GOODS AND GENERAL MERCHANDISE	17	+22.4	+40.0	16	+17.3
FLORISTS	25	+42.2	+23.3	24	+16.8
FOOD	167	+ 1.8	+10.5	163	+ 0.5
Grocery Stores	51	+ 3.2	+ 7.6	51	+ 3.4
Grocery and Meat Stores	116	+ 1.3	+11.4	112	− 0.3
FURNITURE AND HOUSEHOLD	47	+ 1.2	+16.6	44	+ 4.0
Furniture	37	− 1.2	+16.2	34	+ 2.9
Household Appliance Stores	5	+28.9	+24.0	5	+20.3
Radio Stores	5	−13.1	+ 5.3	5	− 9.7
JEWELRY*	41	+14.6	+41.5	35	+ 5.2
LUMBER, BUILDING, AND HARDWARE	221	+ 0.7	+24.9	212	− 1.0
Farm Implement Dealers	11	+ 2.4	+ 8.1	10	+12.8
Hardware Stores	69	+13.4	+25.0	65	+13.5
Lumber and Building Materials Dealers	141	− 3.2	+25.9	137	− 5.9
RESTAURANTS	20	− 1.4	+ 3.9	19	− 0.5
ALL OTHER STORES	11	−21.8	+27.6	11	−34.4
TEXAS STORES GROUPED ACCORDING TO POPULATION OF CITY:					
All Stores in Cities of—					
Over 100,000 Population	213	+ 7.7	+25.0	205	+ 5.5
50,000–100,000 Population	97	+10.9	+30.7	92	+ 6.2
2,500–50,000 Population	436	+10.6	+26.7	418	+ 9.6
Less than 2,500 Population	286	+ 4.8	+24.1	275	+ 7.0

*The percentage change in jewelry sales for Jan. 1940 from Jan. 1939 should be + 7.4.

NOTE: Prepared from reports of independent retail stores to the Bureau of Business Research, coöperating with the United States Department of Commerce.

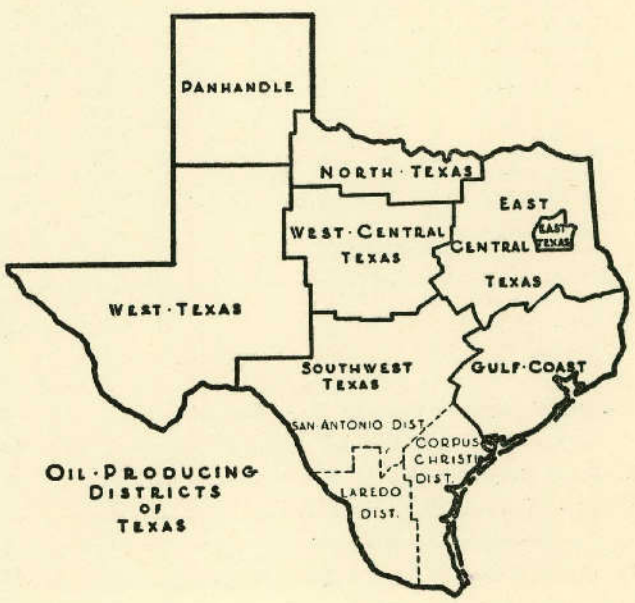
PETROLEUM

Daily Average Production

(In Barrels)

	March 1940	March 1939	February 1940
Coastal Texas*	252,850	217,650	234,700
East Central Texas	89,050	96,700	79,000
East Texas	397,200	372,770	419,650
North Texas	106,100	81,360	101,100
Panhandle	81,000	65,300	76,350
Southwest Texas	262,000	248,990	222,900
West Central Texas	33,550	30,680	33,300
West Texas	273,050	210,400	235,700
STATE	1,494,800	1,328,850	1,402,700
UNITED STATES	3,857,850	3,358,510	3,734,100
Imports	207,857	119,114	233,786

*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: February, 1940, 98,466,000 gallons; February, 1939, 92,995,000 gallons; January, 1940, 102,495,000 gallons.

BUILDING PERMITS

	March 1940	March 1939	February 1940	Jan. 1–April 1 1940	Jan. 1–April 1 1939
Abilene	$ 44,387	$ 54,685	$ 26,160	$ 135,482	$ 146,805
Amarillo	263,305	229,427	137,791	533,843	510,545
Austin	1,107,825	1,041,293	750,229	2,341,322	2,582,856
Beaumont	120,522	167,290	128,488	327,710	361,719
Big Spring	45,092	34,145	6,600*	88,012	112,293
Brownsville	18,823*	12,387*	20,922*	51,775	36,040
Cleburne	14,500	2,785	1,540	16,355	6,245
Corpus Christi	574,762	568,340	1,405,942	3,292,514	908,562
Corsicana	18,543	26,495	13,632	43,000	70,035
Dallas	1,083,791	1,224,437	1,129,982	3,086,151	3,973,035
Del Rio	2,705	8,105	8,250	15,030	19,670
Denton	23,675	13,300	5,800	42,485	57,100
El Paso	212,561	148,527	173,722	522,000	529,951
Fort Worth	483,076	403,503	494,902	1,261,091	1,874,802
Galveston	222,882	160,838	153,080	711,552	408,219
Gladewater	2,685	148	524	8,709	12,579
Graham	4,655	50,436	4,450	16,835	63,296
Harlingen	60,175	4,025	29,335	109,700	20,931
Houston	1,865,680	3,300,296	1,322,470*	6,853,855	7,154,826
Jacksonville	29,500	14,800	1,700	54,750	40,050
Longview	16,050	15,040	12,700	37,230	41,900
Lubbock	264,409	322,749	312,469	1,172,508	789,332
Lufkin	41,582	74,636	36,072	100,827†	‡
McAllen	41,700	33,835	51,962	135,442	70,920
Marshall	28,213	32,640	11,725*	52,421	73,662
New Braunfels	6,910	6,180	9,285	24,480	38,515
Odessa	65,478†	‡	58,768†	160,034†	‡
Palestine	21,840	13,670	11,956	52,792	22,854
Pampa	29,925	22,300	20,300	74,200	49,695
Port Arthur	143,084	87,717	87,535	295,877	273,201
San Angelo	44,410	44,460	38,246	126,910	89,647
San Antonio	716,280	400,505	432,371	1,585,733	1,367,648
Sherman	31,321	14,036	23,795	70,550	86,176
Sweetwater	11,015	6,070	8,385	29,205	21,240
Tyler	120,464	39,808	45,346	204,269	893,590
Waco	126,124	117,326	81,413	360,480	516,686
Wichita Falls	112,764	109,627	42,987	244,381	229,062
TOTAL	$ 7,955,235	$ 8,805,861	$ 7,042,066	$23,978,649	$23,453,687

*Does not include public works.
†Not included in the total.
‡Not available.
NOTE: Compiled from reports from Texas chambers of commerce to the Bureau of Business Research.

COTTON BALANCE SHEET FOR THE UNITED STATES AS OF APRIL 1

(In Thousands of Running Bales Except as Noted)

	Carryover Aug. 1	Imports to Apr'l 1*	Final Ginnings	Total	Consumption to April 1	Exports to April 1	Total	Balance April 1
1930–1931	4,530	52	13,756	18,338	3,384	5,518	8,902	9,436
1931–1932	6,369	66	16,629	23,064	3,566	6,852	10,418	12,646
1932–1933	9,682	88	12,710	22,480	3,749	6,085	9,834	12,646
1933–1934	8,176	100	12,664	20,940	3,945	6,098	10,043	10,897
1934–1935	7,746	74	9,472	17,292	3,034	3,573	6,607	10,685
1935–1936	7,138	90	10,420	17,648	4,081	4,814	8,895	8,753
1936–1937	5,397	139	12,130	17,666	5,298	4,389	9,687	7,979
1937–1938	4,498	80	18,242	22,820	4,017	4,657	8,674	14,146
1938–1939	11,533	95	11,621	23,249	4,609	2,786	7,395	15,854
1939–1940	13,033	112	11,477	24,622	5,331	5,350	10,681	13,941

*In 500-pound bales.
The cotton year begins August 1.

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