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FINANCE • INDUSTRY • AGRICULTURE • TRADE
FOURTH FEDERAL RESERVE DISTRICT

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Credit Restraint--Its Necessity and Impact

THE abatement of inflationary pressures in recent months has focused attention on the whole mechanism of economic controls in a manner almost completely opposite to that which was in vogue at this time last year. Concern is frequently expressed that the controls imposed since the outbreak of the Korean war may prove either unnecessary or too stringent, or both. Of the various measures adopted to restrain the expansion of credit, the more recent selective controls have aroused the greatest volume of discussion. However, the effects of these controls can seldom be completely segregated from the repercussions of traditional policies aimed at insuring monetary stability. It may be appropriate, therefore, to review briefly the developments leading up to the current phase of credit management, and to examine the joint impact of the restraining measures, both general and selective, adopted by the banking system in the past twelve months.

Expansion of Loans and Money Supply — 1950

Leaving aside the question of what the primary causes of inflation were in 1950, it is apparent that monetary and credit developments contributed to the ascending wage-price spiral in the latter half of the year. Along with the sharp rise in the volume of consumer, business and government stockpiling, the accelerated turnover of bank deposits, and increased withdrawals of savings at savings institutions and in the form of savings bonds, banks throughout the United States expanded their loans and their investments in state and local government and corporate securities by an unprecedented $13 billion (21%). This record extension of credit to the private sector of the economy and to state and local authorities far exceeded the increase in such credit in any previous postwar year, including the war-peace transition period of 1946 and 1947 (see Chart I). The 1950 expansion of bank credit to private borrowers and to states and political subdivisions was five times as great as in the rearmament year of 1941. In addition to the record volume of bank lending, funds for expenditures on current output and on capital assets of the economy were also made available in near-record volume out of current and past savings by such financial organizations as life insurance companies, and savings and loan associations.

As a result of the expansion of bank credit, the supply of money available for the cash balances of individuals, partnerships, corporations and state and local governments increased over $7 billion during 1950, exceeding slightly the expansion in the prewar years 1940 and 1941, and substantially that of any postwar year except 1946 (see Chart II). Without the increase in loans and in the money supply, it is certain that at least part of the demand for goods by all sectors of the economy would have failed to become effective and therefore would not have been translated into sharply higher prices. Not so many consumers would have been able to try to buy houses or automobiles at advanced prices, for example, if they had been unable to borrow on relatively easy terms both as regards their initial down-

An editorial discussing the current Defense Bond Drive appears on page 2

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THE DEFENSE BOND DRIVE—*Editorial*

On July 12, 1951, the Hon. John W. Snyder, Secretary of the Treasury, announced plans for a Defense Bond Drive to start on Labor Day, September 3. The Drive will run through October 27. In order to cover the time lag in the transmission of reports, all Defense Bond sales reported by November 13 will be counted in the Drive. The Drive has two objectives: (1) to sell as many bonds to individuals as possible during the period and (2) to get as many people as possible signed up for continuing regular weekly, monthly or periodical purchases thereafter. Committees have been set up in every state and in nearly every county to further the Drive. Efforts are being made to increase the use of the payroll savings plan in business establishments, to foster savings in the schools and to encourage others to arrange for monthly or periodic purchases of bonds. Bonds are being sold for the Treasury by virtually all financial institutions. This includes most commercial banks, savings banks, trust companies, savings and loan associations and credit unions.

Support of the Drive by the people of the nation will serve 4 purposes:

(*1*) It will provide the Treasury with funds needed for financing the nation's defense program.

(*2*) It will reduce the need of the Treasury for going to the banking system for money, and thus will reduce inflationary pressures and help to protect the buying power of every man, woman and child in the land.

(*3*) It will provide individuals and families with increased savings as protection against the uncertainties of the future.

(*4*) It will further demonstrate public support of the defense effort.

The Treasury needs money to pay for the defense program. Federal expenditures for defense are expected to increase substantially over the next several years. Total government expenses are expected to be higher than revenues. The Treasury will have to borrow the difference.

To the extent that the Treasury borrows from the banking system, deposits are increased, total government and private spending tends to rise and inflationary pressures mount. The Treasury gets new deposits to spend while individuals and businesses are left with the funds or money to spend that they had previously. However, when the Treasury borrows from individuals (by selling bonds), that money, which individuals might have spent, is transferred to the Treasury and the Treasury spends it. In this case the Treasury's spending is *in place of* rather than *in addition to* individuals' spending; it helps to keep total spending from increasing more rapidly than the supply of goods, and thus serves as a check on inflation. When people try to increase their buying of goods and services more rapidly than supplies increase, the result is that prices advance, the cost of living rises, and salaries and wages buy less.

The volume of savings increased substantially during World War II and the people of our nation came out of the war with the largest volume of liquid savings in our history. These savings, furthermore, were more widely distributed than ever before. As a consequence, when goods became more plentiful during peacetime, people were able more easily to buy the homes, automobiles, refrigerators and other household goods not available to them during the war. Now again, resources are being diverted to defense. If people will divert increased proportions of their present record-breaking incomes into savings, they will have more funds with which to buy major durable goods when materials become more plentiful and permit increased output of these items. Even better, increased savings will provide people with more funds to meet emergencies which might arise later in this uncertain and uneasy world. They will also help to cushion the shock of unemployment or of changes in employment incidental to future changes in our economy growing out of adjustments to war and peace.

Widespread response to the Defense Bond Drive in the form of outright purchases or of subscriptions to buy bonds regularly in the future will provide convincing evidence that the people of this nation are united in support of the defense program. Our recent growth in productivity has demonstrated our will to produce the goods needed. The purchase of Defense Bonds and an increase in savings generally will demonstrate our ability to exercise self-restraint and thus to help keep our internal economy strong and healthy while we are building our external defenses.

CREDIT RESTRAINT

(CONTINUED FROM PAGE 1)

payment and the subsequent monthly payments. Retailers, wholesalers and manufacturers would have been less willing and able to augment their inventories and expand their scale of operations if they had been less able to secure the cash to finance it.

Offsets to Loan Expansion

The main reason why the expansion of bank loans exceeded the growth in the money supply in 1950 was that the banking system was able to reduce further its holding of U. S. Government securities, as has been the case in every year since 1945. (The reduction in 1949, however, was nominal.) Insofar as the reduction in bank holdings of Governments in 1950 was accomplished by net redemptions, the contractive effect on the money supply which resulted from these redemptions was achieved by an indirect route. When the Treasury collects revenues, from income taxes for example, this generally involves the transfer of deposits by check from private accounts at commercial banks to Treasury accounts with the banking system. When the Treasury spends these revenues — for armaments, social services, aid to agriculture, etc. — there is another transfer of deposits, this time in the reverse direction, out of Treasury balances and into private accounts. When excess revenues are used by the Treasury to redeem its securities held by the banking system, this also causes a reduction in Treasury deposits, but without any corresponding addition to private accounts.

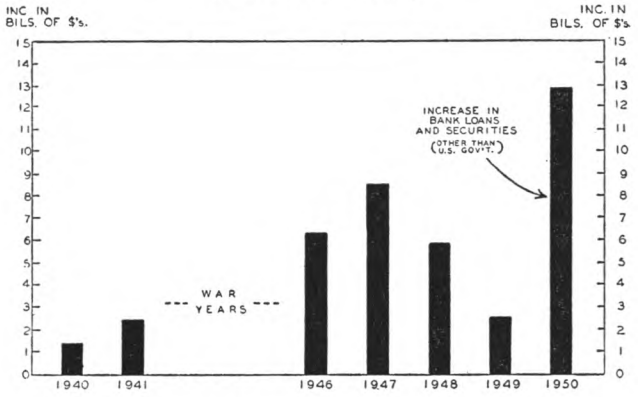
An additional factor which partially offset the influence of the record loan expansion on the privately owned money supply in 1950 was an outflow of gold totaling nearly $2 billion, chiefly in the second half of the year.

Chart I

INCREASES IN BANK LOANS AND SECURITIES

Other Than Obligations of the U. S. Government

(Annual 1940-1950)



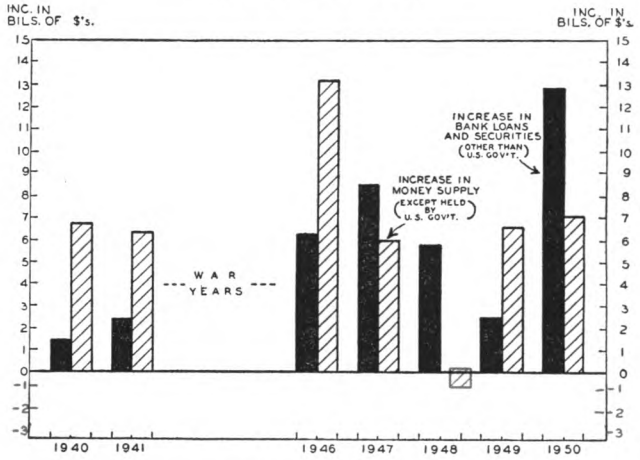
. . . loans to private borrowers and to state and municipal authorities by all banks in the U. S. increased a record $13 billion during 1950 (chiefly after "Korea"), in sharp contrast to increases of only $1½ billion and $2½ billion, respectively, in the rearmament years of 1940 and 1941.

Chart II

INCREASES IN BANK LOANS AND SECURITIES, AND MONEY SUPPLY

Other Than U. S. Government

(Annual 1940-1950)



. . . the expansion of bank loans was responsible for the $7 billion increase in the privately-owned money supply in 1950, the largest increase since 1946. In 1940 and 1941, on the other hand, bank loans were only a secondary factor in the growth of the money supply. In the period from the end of World War II to the end of 1950, the aggregate increase in bank loans to private borrowers and to state and local authorities was equal to the net gain of nearly $40 billion in the privately-owned money supply in this period.

The significance of these contractive forces and the implications for past and future monetary policy cannot be overemphasized. Yet they were not purposely planned. They were among the very small number of natural anti-inflationary forces operating in 1950, and resulted more from circumstance than design. Actual Treasury outlays did not reach the proportions commonly anticipated, and foreign countries benefited to an unforeseen degree from the spectacular rise in world raw material prices while continuing to receive economic aid.

These circumstances no longer prevail. In the second quarter of 1951, cash payments by the Treasury exceeded cash receipts, though defense expenditures still lagged behind the pace of contract awards. By midsummer, the prices of many primary commodities imported by the United States had declined substantially from the peak levels reached earlier in the year, with the result that this country had to pay less for a given volume of such imports. In July, a nominal inflow of gold was reported for the first time in more than a year. Defense expenditures are scheduled to increase, and total expenditures by the Federal Government are likely to exceed revenue. To the extent that the deficit is not financed by

private and public nonbank sources, the banking system may again be called upon to finance rearmament by purchasing U. S. Government securities, as it did from 1940 through 1945, thereby adding to the money supply and to the now latent inflationary pressures. In this connection, however, it is worthy of note that in recent weeks approximately $1½ billion has been raised by the Treasury, largely from outside the banking system, through the issuance of new bills in excess of the volume of weekly maturities. In the course of the financing operation, the yield on new bills rose to the highest level in nearly twenty years.

Rate of Loan Expansion Slows Down

Partly as a result of restrictive monetary and credit policies and partly as a result of seasonal factors, the growth in bank loans has moderated (see Chart III). While the slowing down in the rate of bank loan expansion is not impressive when seasonal influences are taken into account, nevertheless it may well have contributed to the lessening of inflationary pressures this year. The slowdown was particularly marked in the second quarter of the year. While reports for recent weeks reveal further expansion in bank loans, thus far it has been smaller than in most previous postwar years.

In the Fourth District, member banks also show a decline in the rate of expansion of their loans from the record pace of the third quarter of 1950, though to a less marked extent than at all banks in the United States. In contrast to the national trend, however, the expansion of loans by Fourth District member banks in the second quarter of this year was greater than in the comparable period of any other year. Preliminary figures indicate that the third-quarter expansion may also be greater than average for this period of the year. Some of the reasons for the continued relatively high rate of loan expansion in this District are noted later in the discussion of the various types of loans.

General Controls

Before considering developments in specific categories of the loan portfolio, however, it may be desirable to review the operation of the traditional weapons of monetary control, which react on the credit structure as a whole. Federal Reserve Bank discount rates were increased from 1½% to 1¾% and a more flexible open market policy was inaugurated in August last year. Member bank reserve requirements were increased in January and February, making it necessary for banks to hold an additional $2 billion of reserves. In March it was announced that the Treasury and the Federal Reserve had reached agreement with respect to monetary and debt management policies with the purpose of minimizing monetization of the public debt and at the same time assuring the

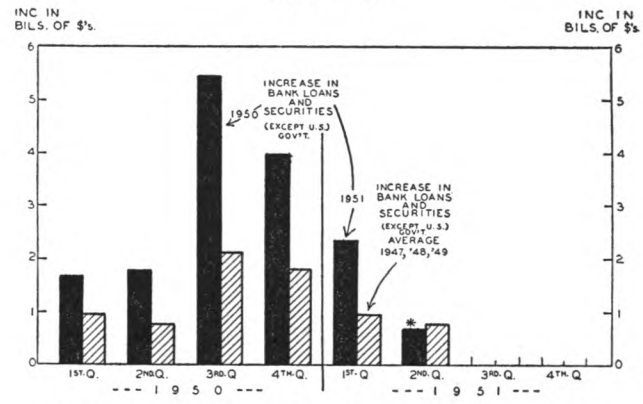
Chart III

EXPANSION OF BANK LOANS AND SECURITIES

Other Than Obligations of the U. S. Government

(1950-1951 compared with average 1947, '48, and '49)

(Quarterly)



. . . the growth of loans to private borrowers and to state and local government authorities has been slower in each quarter since the third quarter of 1950. Although this reflected seasonal influences in part, the loan expansion in the second quarter of 1951 exceeded the average of the increases in the second quarter of 1947, 1948 and 1949 by a relatively small margin.

* Data received since this chart was prepared indicate that the expansion of loans in the second quarter of 1951 was somewhat in excess of $1 billion.

success of the Federal Government's financing operations.

The adoption of a more flexible open market policy by the Federal Reserve injected a long-absent element of risk and uncertainty into the market. The slow decline in prices of Treasury bonds which had been evident throughout 1950 was sharply accentuated, and the yield on the Victory 2½'s, for example, rose from 2.45% at the end of February to 2.67% at the end of April, and remained at about that level for the next three months. The Treasury offered holders of $20 billion of long-term restricted marketable Treasury bonds bearing a 2½% coupon the privilege of exchanging these issues into marketable bonds at 2¾%, and most investors accepted the offer. In all, nearly $14 billion, (or 70%) of the bonds were converted. The rates offered by the Treasury in refunding maturing or called issues were increased, in keeping with the upward movement of yields in the market. In the August 1, 1951, refunding, for example, an 11-month certificate at 1⅞% was offered, in contrast to a 5-year note at 1¾% issued on January 1, and a 13-month note bearing 1¼% issued on July 1, 1950. The traditional monetary restraints imposed by the Federal Reserve System—discount rates, open market operations and reserve requirements—have succeeded, with the cooperation of the Treasury, in increasing the cost, reducing the volume and restricting the availability of credit.

Some moderation was apparent in August, and

prices of Governments rose, with the result that the yield on the Victory 2½'s, for example, declined from 2.67% to 2.59% in the first two weeks of the month. The more buoyant tone in the market reflects progress by various institutions in reducing heavy backlogs of loan commitments, and this has released a greater proportion of current savings for investment in other outlets, such as U. S. Government securities. In addition, there are indications that the total volume of current savings has risen substantially in recent months. Since the end of June, Federal Reserve holdings of U. S. Government securities have remained relatively stable at approximately $23 billion.

Trends by Type of Loan

Business Loans Commercial and industrial loans have been the most important single factor in the post-Korean expansion of bank credit, rising $6½ billion at member banks throughout the country between the end of June 1950 and the end of June 1951. The bulk of the expansion occurred in the second half of 1950 and presumably was caused in large measure by inventory and working capital borrowing growing out of the desire of businesses to build up their stocks, rises in commodity prices and other production costs and out of increased business. The increase in the first half of 1951 was concentrated largely in the early months of the year, probably under the impetus of similar forces. Although there was virtually no net change in the total of these loans in the second quarter of 1951, the stability contrasts with a normal seasonal decline in this period of the year, and in recent weeks signs of a resumption in the expansion of business loans have been apparent.

While the principal increase in business loans in the nation as a whole occurred during the second half of 1950, the sharpest increase in this District was in 1951. (See Chart IV). Fourth District weekly reporting member banks show an expansion in business loans of 20% in the first half of the year compared with a gain of 8% for the country as a whole. This difference in trend reflects differences in the character of loans made and of businesses financed. Products such as steel, machinery, metal components for engines and bodies, rubber, etc., which bulk large in the defense program, form an important part of the Fourth District economy, and pressure on these industries generally is increasing. In addition, the seasonal pattern for business loans in this District is somewhat different from that of banks throughout the country, due partly to the greater importance of commodity loans in other areas. The contrast is illustrated by the fact that business loans declined during the first half of 1951 at reporting banks in the Atlanta, St. Louis and Dallas districts, where commodity loans are more important.

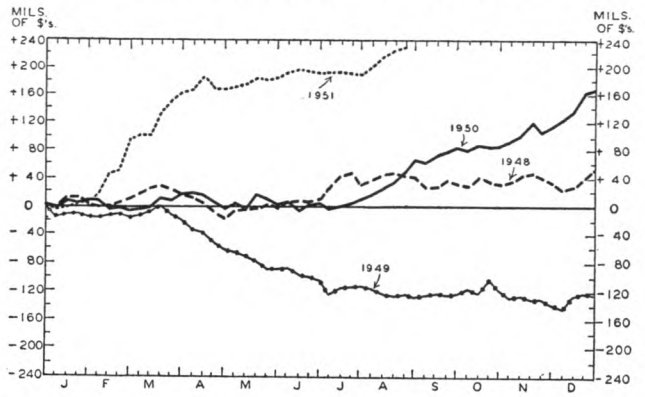
Classification of Business Loans In recent months, a large number of the weekly reporting member banks have provided a detailed breakdown of new commercial and industrial loans made and of repayments on such loans, showing both the purpose for which the loans were made and the business of the borrower. This information was compiled by the banks at the request of the National Committee for Voluntary Credit Restraint, which exercises general direction of the Voluntary Credit Restraint Program. This program was established by the financial institutions of the nation for the purpose of screening loans made by commercial banks, investment bankers, insurance companies, savings banks and savings and loan associations with a view to eliminating or restricting borrowing which would not contribute directly or indirectly to the defense effort or to the increased productivity of the nation. The program injected an element of selective restraint into those fields of business and state and local government borrowing not otherwise subject to mandatory selective controls. (A description of the scope, purpose and mechanism of the Program can be found in the June issue of the Business Review).

According to the data reported by the banks, commercial and industrial loans would have declined somewhat between early May and early August had it not been for an increase of more than $500 million in loans to finance defense and defense-supporting activities (see table below). Outstanding debt for

Chart IV

COMMERCIAL, INDUSTRIAL AND AGRICULTURAL LOANS

Cumulative Changes during 1948, 1949, 1950 and 1951
Weekly Reporting Member Banks, Fourth District



. . . the post-Korean expansion in business loans continued at a rapid pace in 1951 at reporting banks in the Fourth District. Most of the increase, which exceeded that of the second half of last year, occurred in the early months and was followed by a sporadic upward movement in the spring and early summer. In August, however, seasonal influences contributed to a sharp acceleration of the rate of expansion.

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Portland Cement

IN RESPONSE to continued and unprecedented demand, District cement mills are well on their way toward topping the 1950 record output of 20 million barrels. Cement production in the first six months was 20 percent higher than in the same 1950 period. Each year since 1947, when the old 1927 mark of 17.4 million barrels was first exceeded, the mills have set successively higher records.

Despite the rising tide of production, District mills have been unable to rebuild finished stocks to prewar levels when output averaged about half that of recent years. Nevertheless, mill operators foresee no general shortage of cement in this area in the second half of the year. It is expected that supply will just about balance with anticipated construction activity. This takes into account the expected drop in residential and commercial building activity, and assumes that there will be no unusual interruptions in production and supply lines.

Rate of Operations The cement industry, unlike other heavy industries such as steel, has never been able to push operations to 100 percent of theoretical capacity even in periods of sustained demand. In June, for example, District mills turned out a near monthly record of 2 million barrels of cement but this was only 87 percent of capacity as figured by the Bureau of Mines. The industry in 1950 achieved the highest annual utilization factor in more than a decade with output of about 72 percent of theoretical capacity. Nevertheless, this was substantially below the national average of 87 percent as shown by the accompanying chart.

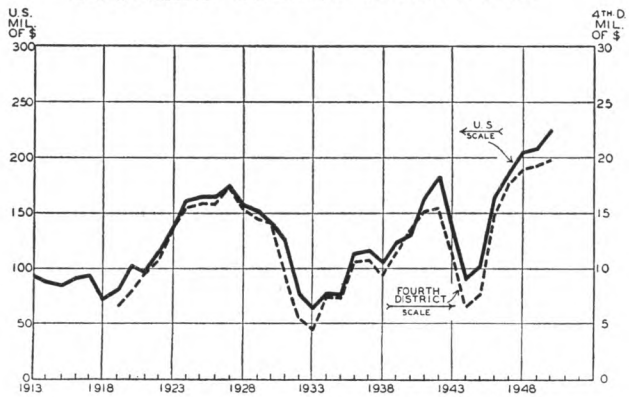
The percent of District mill utilization has been below the United States average every year since 1931. This is the result, in part, of the marked expansion of capacity that took place in this area in the 1920's. It may also be due to the age of certain mills and the failure of their local markets to maintain or equal anticipated rates of demand envisioned when the mills were originally constructed. Steadily advancing freight charges have also reduced the areas which given mills can serve on a competitive basis.

An industry that has been slowly increasing its rate of operations in recent years might be expected to be, at the very least, eliminating marginal production facilities. This has happened—some facilities have been taken out of service. However, these have been more than offset by expansion at other locations with the net result that District total capacity, which amounted to 25.8 million barrels in 1945, rose 8 percent to 27.9 million barrels by the end of 1950.

Capacity The over-all rise in capacity has masked some interesting changes at individual mills which were disclosed in a recent survey made by the Research Department of this bank. Of the 14 cement mills located in the District, only four have the same capacity as in 1945, five have expanded operations, and five others have contracted their production facilities.

The five mills that have dropped capacity in the last five years averaged a 15 percent decline with the range between 7 and 23 percent. On the other hand, the mills which expanded facilities had an average increase of 48 percent. The increases

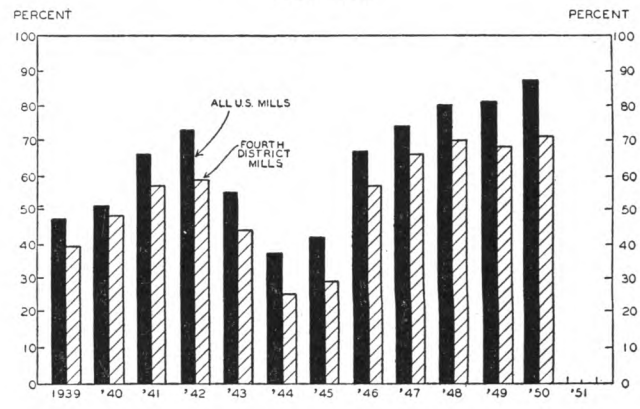
PORTLAND CEMENT PRODUCTION



. . . there has been no postwar let-down in cement mill activity. New production records have been established each year since 1947, in the Fourth District as well as the country as a whole.

Source: Bureau of Mines

CAPACITY UTILIZATION
1935-1950



. . . utilization of capacity has crept up in recent years in this District, but has failed to match the national gain.

Source: Bureau of Mines

ranged from 25 to a maximum of 78 percent. In addition, one of these operators was closed down completely in 1945 because of a lack of sufficient orders to operate, but is now back in full production with new additional facilities.

At least five District mills are currently in the process of further raising productive ability through a wide variety of programs. One company is increasing its storage area so that it can continue operating its kilns and grinding machines steadily through the normally dull winter demand period and store the excess production. Another company will step up output by converting from the wet to the dry process. Another is renovating its kilns to increase efficiency and adding to its grinding capacity. The fourth company has dismantled an old kiln and will replace it with a more efficient and somewhat larger unit.

These various construction plans will raise District rated capacity by at least 600,000 barrels in 1951 and another 250,000 barrels in 1952. An important producer has a 2,000,000-barrel expansion program in the talking stage but as yet has not made any definite commitments.

CHANGES AT FOURTH DISTRICT CEMENT MILLS *
1945-1950

Rotary Kilns
Number

	Average Length	Less than 100′	100′-125′	126′-149′	150′-199′	200′ and up	TOTAL
1945	141′	—0—	45	—0—	19	7	71
1950	142′	—0—	41	—0—	19	7	67

Rotary Kilns
Distribution

	Less than 100′	100′-125′	126′-149′	150′-199′	200′ and up	TOTAL
1945	—0—	63%	—0—	27%	10%	100.0%
1950	—0—	61%	—0—	29%	10%	100.0%

Capacity

	TOTAL 000's of bbls	BY PROCESSES 000's bbls. Wet	Dry	Distribution Wet	Dry
1945	22,604	12,733	9,871	56%	44%
1950	24,673	14,883	9,790	60%	40%
% Change	+9%	+17%	−1%		

NUMBER OF PORTLAND CEMENT PLANTS *
by size groups

Estimated annual capacity, bbls.:	United States 1949** No. of plants	Percent of total	Fourth District 1950 No. of plants	Percent of total
Less than 1,000,000 . . .	26	17%	1	7%
1,000,000 to 2,000,000	87	57	10	72
2,000,000 to 3,000,000	28	19	2	14
3,000,000 to 10,000,000	11	7	1	7
TOTAL.	152	100%	14	100%

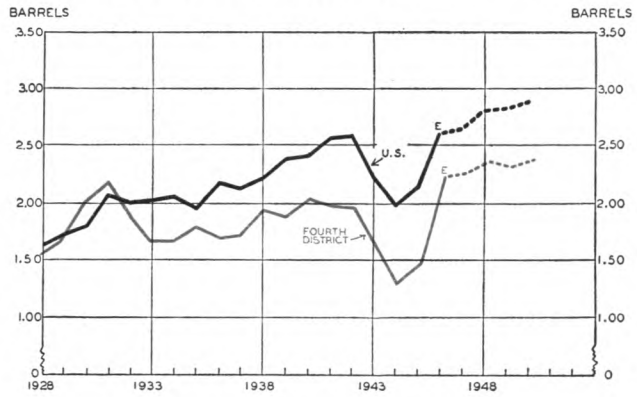
CAPACITY OF PORTLAND CEMENT PLANTS *
by processes

Process	Capacity (000's of barrels) U. S. 1949**	District 1950	Percent of total U. S.	District
Wet.	139,169	14,883	54%	60%
Dry.	119,779	9,790	46%	40%
TOTAL. .	258,948	24,673	100%	100%

* Fourth District data in these tables were obtained from 14 mills located in the Fourth Federal Reserve District. Production data used in the text material were obtained from reports published by the Bureau of Mines for their territories of Ohio, Western Pennsylvania and West Virginia. This includes all of the Fourth District plus production from West Virginia mills outside of the District with an additional rated capacity of 3,241,000 barrels.

** U. S. Bureau of Mines.

CEMENT PRODUCTION PER MAN HOUR



. . . man hour productivity has risen to a record high, both in this District and elsewhere. Technological improvements and nearer-to-capacity operations have been the major factors.

Source: Bureau of Mines

Years 1947, 1948, 1949, and 1950 are estimated.

Output Per Man hour

Cement mills have gradually been improving their efficiency to meet ever-rising costs. One measure of this trend is cement production per man hour and is shown on an accompanying chart.

Perhaps the most important factor influencing man-hour productivity is the rate at which a mill is being operated. Operations have become so mechanized that as operations move up toward 100 percent of capacity the increases are achieved with a less than proportional in-put of man hours. This tendency is clearly shown by the chart. The sharp dips in productivity occurred during periods of restricted output but rose markedly as total production increased.

There has also been, of course, a gradual increase in output per man hour over the years due to the development of more efficient methods and machinery and improved materials handling devices. These have been applied all the way from the quarry or slag pile to the clinker grinding machines and load-

ing docks. The construction of new and more efficient plants, modernization of existing properties, and abandonment of obsolete mills have all played a part in raising the industry's average man-hour output. But the sharp year-to-year fluctuations shown by the chart are due to changes in the general rate of production.

Considering the close relationship between rates of operation and output per man hour, it is not surprising to find that output per man hour at District mills has been below the United States average. This corresponds to the fact that District operations as a percent of theoretical capacity have also ranged consistently below the United States average. Perhaps another contributing factor is that all of the District mills except two operate their kilns entirely with powdered coal. One company supplements its coal with by-product furnace gas and the other uses some oil. Coal makes for larger labor requirements as preparing it for burning takes more man hours. The national trend, especially in the Southwest and Far West, has been toward higher and higher utilization of natural gas and fuel oil which can be handled with a minimum of labor.

CREDIT RESTRAINT

(CONTINUED FROM PAGE 5)

nondefense purposes was reported to have declined some $350 million in the same period. In the Fourth District also, defense and defense-supporting loans were reported to have increased substantially during a similar period of time, but nondefense loans declined only slightly.

In interpreting these figures, however, certain considerations should be borne in mind which tend to modify the extent to which the defense program appears to have been the direct cause of a continuation of the loan expansion. Under the present system of classification, a loan to a steel firm, for example, is considered to be "defense-supporting" because of the basic dependence of the rearmament program on an adequate supply of steel, regardless of whether the plans of the firm were made prior to the outbreak of hostilities in Korea. Such a loan, although defense-supporting, is not directly attributable to the defense program itself. Furthermore, the reports tend to understate the volume of repayments, since transactions involving less than $50,000 are excluded. Since repayments are frequently made in smaller units than loans, it is probable that part of the repayments on a loan of, say, $200,000 might be in units of less than $50,000, and such repayments consequently would not be included in the reported figures. As a result, the net increases in loans which have been reported chiefly in the defense or defense-supporting categories are probably overstated, and the net decreases (chiefly in nondefense categories) are probably understated.

The most recent data show net increases in the amount of outstanding business loans incurred for nondefense inventory and working capital purposes. Prior to August, loans for this purpose were the major contracting factor both for the national and Fourth District sample of banks.

An accompanying table indicates the net changes reported in business loans by industry or business groups. As might be expected in view of the increase in defense and defense-supporting loans, net borrowing by producers of metals and metal products was the major expansionary factor both nationally and in the Fourth District. Prior to mid-August, such loans had risen sharply in every week for which data are available for Fourth District banks, but since then the rate of expansion appears to have slowed down.

An increase of about $90 million was also reported for the textiles, apparel and leather category for the banks throughout the nation, but in this District new borrowing by such firms has comprised only a small part of the total with virtually no net change in the volume of such loans outstanding. Public utility borrowing is reported to have contributed substantially to the increase in loans both nationally and in the Fourth District.

A major contracting factor in the period under review has been loans to commodity dealers, down more than $200 million at all reporting banks. Such loans declined in this District also until late July when a sharply expanded volume of new borrowing offset the earlier reductions. Loans to food, liquor and tobacco manufacturers declined $224 million (net) in May, June and July, but in recent weeks net increases have been reported in these loans also. Both locally and nationally, bank debt of wholesalers and retailers combined shows a net decline for the three months as a whole, but in the latest weeks for which figures are available, substantial net new borrowing has been reported. The largest volume of repayments to Fourth District banks for any single business classification was reported for sales finance companies, resulting in a net decline of $21 million in their indebtedness, whereas nationally, new borrowing and repayments by such firms were virtually in balance.

Securities Other Than Federal

The other major component of bank credit for which the Voluntary Credit Restraint program is

the only selective instrument of restriction is that credit extended through bank purchases of corporate and state and local government securities. Bank holdings of these securities have expanded much more slowly in 1951 than they did last year. By late August, investments in such securities by weekly reporting banks throughout the country showed a net increase of approximately $100 million, in contrast to a $1 billion expansion in the same period of 1950. Moreover, the small gain this year occurred in the early months, and since mid-April no net change has been registered. The curtailment of bank activity in this field took place in the face of a substantially higher volume of new capital flotations in March, April and May of this year than in the corresponding months of 1950. Although holdings of non-U. S. Government securities by reporting banks in this District registered a net gain during the first half of the year similar to that of 1950, by September this expansion was wiped out and the portfolio stood at virtually the same figure as at the end of last year.

Expansion in Real Estate Loans Slows Down

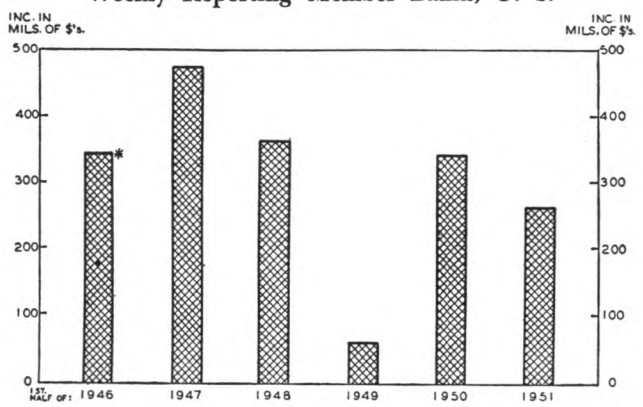
Of great prominence in the 1950 inflation was the record-breaking growth in mortgage loans. In addition to the more than $3½ billion increase in real estate loans at banks throughout the country, savings and loan associations reported a gain of more than $2 billion and life insurance companies an increase of $3 billion in their mortgage holdings during the year. In this District also, record increases in mortgage loans were reported by banks and savings and loan associations. Regulation X was imposed in October last year and subsequently broadened in scope with a view to imposing restraints on the growth of credit, to moderating the boom in real estate and to reducing the volume of building.

Chart V

INCREASES IN REAL ESTATE LOANS

First half of year, 1946 – 1951

Weekly Reporting Member Banks, U. S.



. . . the expansion of real estate loans at reporting banks throughout the country in the first half of 1951 was less than in the comparable period of any other postwar year except 1949.

*** Partially estimated.**

The full effects of Regulation X and the companion regulations of the Federal Housing Administration and the Veterans Administration were not felt immediately. Many lenders had large volumes of commitments outstanding at the time the regulations were imposed and these loans were, of course, exempt from the restraints of the regulations. As a consequence, the restrictions have become effective only gradually as new commitments or loans have been made. While the regulations have undoubtedly had some restraining effect on the growth of credit, it is pretty clear that the most important factors have been the decline in prices of U. S. Government securities and the increases in money rates which accompanied the changes in the monetary and debt management policies of the Federal Reserve System and the Treasury last March. The sale of government securities at lower prices in order to lend the proceeds on mortgage loans involves an initial loss which makes the transaction much less attractive to the lender. The rise in money rates has made U. S. Government securities and other alternate forms of investment more attractive. As a consequence, lenders have become much less interested in lending on mortgages at 4% or 4¼%—the rates for VA and FHA mortgages—and rates on so-called conventional mortgages have tended to rise.

The tightening of money and the slowing down of expansion in the real estate mortgage field are undoubtedly due in part to the regulations, but for the most part reflect the interrelationships existing in the money market and illustrate the manner in which changes in Treasury debt management and in Federal Reserve open market policies are translated into restraints on inflationary forces.

All types of lenders reveal a slowing down in the growth of their mortgage loan portfolios, particularly in VA and FHA mortgages. At banks, the expansion in real estate loans in the first half of 1951 not only was substantially less than in the second half of 1950, but (as indicated in Chart V) was smaller than in any other first half year of the postwar period except 1949.

On September 1, legislation was enacted modifying the terms of Regulation X for the extension of credit on homes of $12,000 or less. The law extends the maximum maturity of a loan on a new home selling for more than $7,000 but less than $12,000 to 25 years and liberalizes the down-payment requirements for houses in this price range. Minimum down-payments specified in the law compared with those prescribed in the then prevailing regulations are shown in the following table:

Minimum Down-Payment Permitted

Value of Family Unit	By Old Regulation	By New Act
	VA Loans	
$5,000 or less	$250	4%
$5,000-$7,000	Up to 7.1%	
$7,000-$10,000	7.1%-13.0%	6%
$10,000-$12,000	13.0%-15.8%	8%
	FHA and Conventional Loans	
$7,000 or less*	10.0%-17.1%	10%
$7,000-$10,000	17.1%-23.0%	15%
$10,000-$12,000	23.0%-25.8%	20%

* Where the value of the family unit is $2,500 or less, the Regulation does not apply.

To maintain conformity with the revised schedules of minimum down-payments on family units costing $12,000 or less prescribed by law, the Board of Governors modified slightly the down-payment requirements on family units costing up to $24,500. In addition, the law suspends restrictions on credit in "critical defense areas" on housing costing up to $12,000 or renting under $84 a month, and provides that the President may order relaxation of the credit restraints on higher priced housing in such areas.

Consumer Loans Consumer instalment credit reflected conspicuously the wave of war-scare buying last summer. From the end of June to the end of October (1950) the volume of these credit balances increased by $1,300,000,000. The growth was retarded by the imposition of Regulation W in September and the subsequent tightening of the terms of the Regulation in October. Leveling off in the last quarter of 1950, consumer instalment credit outstanding declined moderately throughout the first four months of this year, partly as a result of seasonal influences. A subsequent slight rise since April in instalment loans appears to have been of less than the usual seasonal proportions. According to commercial bank figures, the shrinkage was most pronounced in instalment credit for the purchase of consumer durable goods other than automobiles, reflecting the slowdown in sales of such articles as television sets and major household appliances. Automobile credit and repair and modernization loans also declined slightly, but personal instalment cash loans continued to expand. Similar developments in the various categories of instalment credit have been apparent at Fourth District banks. The shrinkage in instalment credit resulted partly from an increase in the rate of repayments and partly from a decline in the volume of new credit extended.

The revised Defense Production Act, enacted July 31, 1951, established certain limits on terms which were easier than those specified in Regulation W. The principal changes were as follows:

Effect of Revised Defense Production Act on Regulation W

Type of Instalment Credit	Minimum Down-payment Reg. W	Minimum Down-payment Def. Prod Act	Maximum Maturity Reg. W	Maximum Maturity Def. Prod. Act
Automobiles	33⅓%	33⅓%	15 mos.	18 mos.
Household Appliances (incl. TV and radio)	25 %	15 %	15 mos.	18 mos.
Furniture and floor coverings	15 %	15 %	15 mos.	18 mos.
Home repairs and improvements	10 %	10 %	30 mos.	36 mos.

In addition, the down-payment for any of the three categories of consumer durable goods can now be made completely in the form of a trade-in allowance on such items as used automobiles, appliances or furniture. As with the liberalization of Regulation X on home purchases, no evidence is as yet available to indicate the extent to which these relaxations of credit restraints will add to the demand for bank credit.

Net Change in Commercial and Industrial Loans By Purpose of Loan

(Reporting banks: U. S. and Fourth District)

Purpose of Loan	NET CHANGE May 9-Aug. 1 U. S. (in millions of dollars)	NET CHANGE May 9-Aug. 1 Fourth District (in millions of dollars)
Defense Contracts	+$248	+$20
Defense-Supporting		
Plant and Equipment	+ 204	+ 30
All Other	+ 52	+ 11
Nondefense		
Inventory and Working Capital	− 404	− 20
Plant and Equipment	+ 95	+ 9
Retirement of Nonbank Debt and Preferred Stock	+ 19	—0—
All Other	− 55	+ 6

Net Change in Commercial and Industrial Loans By Business of Borrower

(Reporting banks: U. S. and Fourth District)

Business of Borrower	NET CHANGE May 9-Aug. 1 U. S. (in millions of dollars)	NET CHANGE May 9-Aug. 1 Fourth District (in millions of dollars)
Manufacturing and Mining		
Food, Liquor and Tobacco	−$224	−$3
Textiles, Apparel & Leather	+ 93	− 1
Metals & Metal Products	+ 328	+60
Petroleum, Coal, Chemicals and Rubber	+ 10	− 7
Other Manufacturing & Mining	+ 77	+16
Trade—Wholesale and Retail	− 151	−10
Commodity Dealers	− 206	+ 2
Sales Finance Companies	— 11	−21
Public Utilities	+ 280	+15
All Other	+ 39	+ 4

FINANCIAL AND OTHER BUSINESS STATISTICS

Time Deposits* at 54 Banks in 12 Fourth District Cities

(Compiled August 7 and released for publication August 8)

City and Number of Banks	Time Deposits July 25, 1951	Average Weekly Change During: July 1951	June 1951	July 1950
Cleveland (4)	$ 880,777,000	+$ 721,000	+$1,520,000	—$1,637,000
Pittsburgh (9)	495,294,000H	+ 244,000	+ 1,673,000	+ 254,000
Cincinnati (7)	175,510,000	— 58,000	— 164,000	— 313,000
Akron (3)	100,020,000	+ 50,000	+ 46,000	— 468,000
Toledo (4)	108,176,000H	+ 81,000	+ 242,000	— 24,000
Columbus (3)	87,233,000H	+ 119,000	— 2,000	— 138,000
Youngstown (3)	62,715,000	+ 131,000	+ 101,000	— 38,000
Dayton (3)	46,104,000	+ 128,000	+ 79,000	— 149,000
Canton (5)	42,461,000	+ 80,000	+ 62,000	— 105,000
Erie (3)	41,618,000H	+ 104,000	+ 42,000	+ 25,000
Wheeling (5)	26,494,000	+ 34,000	— 10,000	—0..
Lexington (5)	11,136,000H	+ 30,000	+ 58,000	— 64,000
TOTAL—12 Cities	$2,077,538,000H	+$1,664,000	+$3,647,000	—$2,657,000

H—Denotes new all-time high.

Time deposits at reporting banks in 12 Fourth District cities increased for the fourth successive month during July at an average weekly rate of $1,664,000 to establish a new all-time high. In the three prior years, time deposits declined during July, with particularly heavy net withdrawals at a rate of $2,657,000 per week being reported in this month of scare-buying last year.

Every city reported a gain in time deposits except **Cincinnati,** and the average weekly decline of $58,000 there was noticeably smaller than in the same month of the three previous years.

Pittsburgh, Toledo and **Lexington,** where gains have been reported in almost every month this year, advanced to new all-time highs for the second successive month, though in each city the rate of increase was slower than in June. **Columbus** and **Erie** also achieved new records, having shown greater-than-average strength throughout the post-Korean period.

The inflow of savings to **Cleveland** banks at the rate of $721,000 per week was in marked contrast to the net withdrawals which have typified July in earlier post-war years. For the first time this year, aggregate time deposits of the four reporting banks in Cleveland were higher than at the end of 1950, and in excess of the year-ago figure.

Adjusted Weekly Index of Department Store Sales*

Fourth District

(Weeks ending on dates shown, 1935-39 average = 100)

1950r		1951		1950r		1951	
Jan. 7	278	Jan. 6	425	July 1	327	July 7	314
14	310	13	412	8	322	14	330
21	320	20	443	15	354	21	325
28	308	27	398	22	388	28	315
				29	418		
Feb. 4	293	Feb. 3	287	Aug. 5	374	Aug. 4	314
11	308	10	359	12	344	11	309
18	279	17	354	19	330	18	310
25	255	24	365	26	323	25	315
Mar. 4	258	Mar. 3	302	Sept. 2	295	Sept. 1	
11	279	10	293	9	324	8	
18	264	17	266	16	345	15	
25	263	24	251	23	318	22	
		31	293	30	335	29	
Apr. 1	285						
8	279	Apr. 7	297	Oct. 7	297	Oct. 6	
15	262	14	311	14	307	13	
22	283	21	323	21	287	20	
29	334	28	358	28	298	27	
May 6	299	May 5	336	Nov. 4	280	Nov. 3	
13	296	12	312	11	281	10	
20	299	19	313	18	288	17	
27	295	26	312	25	221	24	
				Dec. 2	195	Dec. 1	
June 3	295	June 2	309	9	328	8	
10	314	9	311	16	334	15	
17	309	16	304	23	314	22	
24	306	23	312	30	342	29	
		30	325				

* Adjusted for seasonal variation and number of trading days. Based on sample of weekly reporting stores which differs slightly from sample reporting monthly.

Bank Debits*—July 1951 in 31 Fourth District Cities

(Compiled August 10 and released for publication August 11)
(In thousands of dollars)

No. of Reporting Banks			July 1951	% Change from Year Ago	3 Months Ended July 1951	% Change from Year Ago
181	ALL 31 CENTERS		$9,326,179	+19.4%	$28,743,161	+22.4%
	10 LARGEST CENTERS:					
5	Akron	Ohio	367,866	+32.4%	1,137,454H	+48.7%
5	Canton	Ohio	149,318	+19.5	447,446H	+19.9
14	Cincinnati	Ohio	1,177,810	+20.8	3,497,692H	+18.8
10	Cleveland	Ohio	2,503,977	+24.4	7,499,130	+25.2
7	Columbus	Ohio	595,813	+ 5.0	1,842,246	+ 4.6
4	Dayton	Ohio	311,196	+19.4	909,583H	+19.6
6	Toledo	Ohio	437,720	+14.7	1,361,376	+21.2
4	Youngstown	Ohio	196,860	+12.7	632,159	+21.8
5	Erie	Pa.	110,850	+ 9.8	353,766H	+19.4
44	Pittsburgh	Pa.	2,702,054	+21.2	8,658,904	+26.0
104	TOTAL		$8,553,464	+20.4%	$26,339,756	+23.1%
	21 OTHER CENTERS:					
9	Covington-Newport	Ky.	$ 45,504	+ 1.5%	$ 139,278	+ 5.6%
6	Lexington	Ky.	62,208	+ 6.3	185,213	+ 4.9
3	Elyria	Ohio	26,465	+16.7	82,728H	+26.0
3	Hamilton	Ohio	51,104	+23.1	153,899H	+21.0
2	Lima	Ohio	61,317	+16.7	181,785H	+23.9
5	Lorain	Ohio	22,393H	+22.9	65,551H	+19.4
4	Mansfield	Ohio	50,829	+ 0.9	166,500	+14.6
2	Middletown	Ohio	50,647	+28.2	153,226H	+31.9
3	Portsmouth	Ohio	23,925	+ 9.1	73,213	+13.9
3	Springfield	Ohio	51,629	+ 8.7	161,368	+14.6
4	Steubenville	Ohio	26,611	+ 4.2	83,684	+14.3
2	Warren	Ohio	48,259	+14.4	159,422	+25.1
3	Zanesville	Ohio	30,223	+ 3.3	97,255	+12.3
3	Butler	Pa.	35,124	+ 6.7	113,706	+13.9
1	Franklin	Pa.	7,211	— 2.8	24,032	+ 7.5
2	Greensburg	Pa.	25,558	+11.4	78,444H	+15.3
4	Kittanning	Pa.	11,845	+ 8.1	37,181	+20.3
3	Meadville	Pa.	14,728	+ 6.0	46,668	+ 8.0
4	Oil City	Pa.	19,669	— 7.8	61,106	+ 0.4
5	Sharon	Pa.	33,553	+12.1	107,114H	+22.3
6	Wheeling	W. Va.	73,913	+ 5.3	232,032	+14.4
77	TOTAL		$ 772,715	+ 9.7%	$ 2,403,405	+16.0%

* Debits to all deposit accounts except interbank balances.
H—Denotes all-time high.

Debits to deposit accounts (except interbank) in 31 Fourth District cities during July declined from the all-time high registered in June to the second lowest monthly total this year—$9,326,179,000. It is not unusual, however, for July debits to fall short of the June figure, and last month's volume of debits was still large enough to set a new record for the month, 19.4% above the year-ago figure. The fact that this margin was the smallest in twelve months reflects the slowing down in the rate of expansion of industrial activity in recent months.

With deposits rising slightly to register a new all-time high for the fourth successive month, the rate of turnover dipped to 13 times per year from the record post-war rate of annual turnover of 14 in June.

TEN LARGEST CENTERS

Debit volume at each of the large centers except **Dayton** was lower during July than in the previous month, following the pattern of recent years.

Akron led in year-to-year comparisons for the fifth time this year with a gain of 32.4%, while **Cleveland, Pittsburgh** and **Cincinnati** also registered increases of more than 20%. Aggregate debits for the past three months combined fell slightly below the record second quarter total, although five cities posted new all-time highs for the three month period.

TWENTY-ONE SMALLER CENTERS

The decline in debits at the smaller centers from June to July was sharper than in any earlier postwar year, and resulted in a year-to-year margin of 9.7%, the smallest since before the Korean outbreak.

Lorain was the only center to register a higher volume of debits in July than in June, and the gain was sufficient to establish a new all-time high, exceeding the previous seasonal record of December 1948. The year-to-year increment for Lorain, 22.9%, was bettered by **Hamilton** and **Middletown,** and all three cities, together with **Elyria, Lima, Greensburg** and **Sharon** registered all-time highs in aggregate debits for the past three months combined.

July was the first month since May 1950 in which a majority of the small centers posted year-to-year gains of less than 10%.

Indexes of Department Store Sales and Stocks

	Daily Average for 1935-1939 = 100 Adjusted for Seasonal Variation			Without Seasonal Adjustment		
	July 1951	June 1951	July 1950	July 1951	June 1951	July 1950
SALES:						
Akron (6)	341	306	393	286	287	330
Canton (5)	375	400	449	315	384	377
Cincinnati (8)	326	280	386	251	261	298
Cleveland (11)	274	280	318	222	266	257
Columbus (5)	358	315	409	286	302	327
Erie (4)	371	381	420	289	347	328
Pittsburgh (8)	276	283	332	199	275	239
Springfield (3)	294	279	321	238	271	260
Toledo (6)	307	291	353	237	270	272
Wheeling (6)	258	247	309	196	227	235
Youngstown (3)	371	366	413	282	344	314
District (98)	309	306	364	241	287	284
STOCKS:						
District	349	361	252	348	355	251

Ultrasonics--A New Tool For Industry

by CLYDE WILLIAMS, *Director, Battelle Memorial Institute*

During World War II, use of high-frequency sound waves, or ultrasonics, was a key factor in the detection of enemy submarines. Since that time, we have learned more about how ultrasonics can be used, not only in attack on submarines, but also in attack on quite a few of the problems of industry. As we learn of more industrial processes that may benefit from the use of ultrasonic energy, and as lower-cost equipment for producing it becomes available, the number and variety of industrial applications will increase.

"Silent" sound, as ultrasonic energy is often called, refers to sound waves with frequencies of vibration higher than the human ear can hear, or above about 16,000 cycles per second. The term "supersonic", formerly used interchangeably with "ultrasonic", now refers usually to speed only — speeds greater than the speed of sound. Supersonic airplanes, for example, travel at speeds over 700 miles per hour.

High-frequency sound waves may be directed in narrow or broad diffuse beams. As the energy passes through a given material, the effects vary according to the composition of the material and the frequency and power of vibrations. Stable mixtures can be produced from normally non-mixable liquids like oil and water, or mercury and water. Large solid particles may be reduced to dust. Small particles of liquids and solids can be removed from a gas stream by causing them to collect together. Many chemical reactions are speeded up in the presence of ultrasonic radiation. High-powered sound waves can be used to remove gas from most liquids. The production of heat by ultrasonics has been used in physical therapy, where effects differ from those obtainable with X-ray, infrared or diathermy. Ultrasonic vibrations can also kill bacteria.

It would be difficult to think of an industry that might not benefit from the use of high-frequency sound waves. Some present and potential applications include inspection of materials for internal flaws; removing water during soap-making; causing smoke particles to drop out of exhaust gases before discharge from chimneys; drying paper during manufacture; high-speed dyeing of fabrics and plastic materials; recovering fine metallic dust lost in smelting operations; removing dirt in laundering; ageing liquor; sterilizing foods; and processing of leather and ceramic materials.

Perhaps the most widely accepted use of "silent" sound in industry has been in testing metals and metal products for hidden flaws that may lead to failure. A narrow beam of very high-frequency ultrasonic energy will penetrate some metallic materials with thicknesses up to 40 feet or more. Any flaws in the beam's path will be reflected on the measuring instrument. Items tested may range from locomotive axles and rails, to submarine hulls, gun barrels, turbine blades, bolts, and sheet and bar stock.

At Battelle, where an extensive laboratory for research in nondestructive testing is maintained, we find that this application of ultrasonic energy is playing an important part in reducing costs. Today, American industry is using nondestructive testing equipment to test and inspect billions of dollars worth of materials, parts, and assemblies. Used in the production process, as well as in preventive maintenance, nondestructive testing has also brought added safety to many phases of military and civilian life.

One of the newest applications of high-powered sound waves is as a tool for drilling and marking hard or brittle material, like carbides, glass, and ceramics. These are almost impossible to work in any other way. Another ultrasonic device, also of recent development, helps paper mills cope with the problem of polluting streams with wastes. By shooting a beam of high-intensity sound at fiber-bearing waste water, tiny bits of fiber too small to be picked up by screening are easily removed.

The high cost and low output of equipment for producing ultrasonic energy have been factors limiting its wider use by industry. This situation is changing, however, as a result of several outstanding developments of recent years.

Through greater production by a number of companies, it has been possible to bring the price of some crystal transducers down from about $1000 to around $250. This type of equipment, probably the best known for generating ultrasonic waves, converts electrical energy into ultrasonic energy through the use of such crystals as quartz and Rochelle salt. These crystals are capable of changing electrical vibrations into mechanical vibrations and vice versa.

No more expensive than natural crystals is a new ceramic material, barium titanate, which is now being used for generating high-powered sound waves. This synthetic material can be formed into a variety of sizes and shapes that would be costly to make from natural crystals like quartz. The new ceramic also provides power substantial enough for practical use with voltages low enough for easy handling. Barium titanate equipment has proved especially useful in the production of ultrasonic waves in liquids. It may, therefore, find wide usage in the chemical processing industries.

The "building blocks" are here. It is now possible to investigate and properly evaluate the application of ultrasonic energy to industrial processes on a pilot-plant scale. On the "test-tube basis" of former years, this was not possible.

Ultrasonic energy has become recognized as a scientific tool useful to industry. Two important jobs, however, remain to be done. The first of these is to extend the number of industrial processes than can benefit from the use of ultrasonic energy. The second is to continue devising improved higher-power generating equipment, at lower cost, so that a greater range of applications can be made economically worth while.

Editor's Note — While the views expressed on this page are not necessarily those of this bank, the *Monthly Business Review* is pleased to make this space available for the discussion of significant developments in industrial research.