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CONTENTS

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Is Construction Being Retarded—or Stimulated?

THE problem of projecting the future course of total construction activity has always been difficult. But under present circumstances, when the industry is being spurred by a variety of incentives, and at the same time is restrained by a series of curbs and hindrances, the end result is even more conjectural.

Will existing and prospective limitations and shortages bring about a significant reduction in activity? Or will defense and other requirements, as well as economic incentives, more than make up the difference?

RESTRAINTS

Construction activity has been noticeably restrained by two distinct means. One form of control is that which is imposed directly on construction activity, limiting the type or size of projects that may be started as well as the kinds and amounts of materials that may be used. The other form of control limits the amount of credit available to the prospective owner-builder. It may be directed at specific types of construction or at the availability of credit in general. All controls currently affecting the construction industry fall into one of these two categories.

Curbs on Use of Materials The National Production Authority pulled the first prop out from under the construction boom on October 26, 1950, when it banned most construction for recreational, amusement, or entertainment purposes. Various amendments to this order were made during the following months so that by May 3, 1951, nearly all projects requiring more than 25 tons of steel could not be started without official sanction.

The original orders were recently superseded by a new set of regulations placing construction under the Controlled Materials Plan after September 30. The new rules prohibit all types of construction using more than specified amounts of steel, copper, and aluminum unless the contractor obtains an authorized construction schedule and related material allotments. The order also prohibits the use of copper and aluminum for decorative purposes; bans the use of copper for most of its normal, site-fabricated uses except piping; and allows builders to self-authorize allotments of controlled materials where only minimum amounts are required. The quantities of materials, by type of construction, for which the self-authorization procedure may be used are as follows:

Maximum Quantities Contractor May Self-Authorize (in pounds per project)

Type of Construction	Carbon Steel[1]	Copper	Aluminum
One-family houses...	1,450-1,800	35-160	none
Two-family houses...	2,750-3,500	65-300	none
Three-family houses..	4,100-5,100	100-450	none
Four-family houses...	5,200-6,500	125-575	none
Multi-family units ...	none	none	none
Recreational, entertainment, or amusement projects.....	none	none	none
Industrial projects (per calendar quarter).....	([2])	2,000	1,000

[1] Excludes structural steel, alloy steel, and stainless steel.

[2] 25 tons of carbon and alloy steel including structural steel (not to include more than 2½ tons of alloy steel nor any stainless steel).

The amounts of steel and copper that a contractor is allowed to self-authorize for a residential structure vary with the type of water supply system used. In a one-family house, for example, if copper pipe is used, only 1,450 pounds of steel but 160 pounds of copper is permitted. If steel pipe is used, 1,800 pounds of steel may be self-authorized but only 35 pounds of copper may be self-certified.

Allotment of the three scarce materials under CMP began October 1st. Builders may start or continue construction on projects after that date without government authorization provided their requirements of controlled materials do not exceed the amounts they are allowed to self-authorize, or provided they had sufficient controlled materials in inventory prior to October 1 so that they do not require delivery of controlled materials after September 30 in quantities larger than they are permitted to self-authorize. Otherwise, the contractor must obtain an authorized construction schedule and related material allotments from his claimant agency. Requests to start or continue construction must be directed to the appropriate claimant agency such as the Housing and Home Finance Agency, the Department of Agriculture, the Bureau of Public Roads, and so forth.

Special rules govern two categories of construction. Builders of multi-family structures containing 5 or more dwelling units started after September 30 must obtain authorized construction schedules and related materials allotments regardless of the amount of controlled materials to be used. The same rule holds true for projects under way before September 30 that require delivery of controlled materials after that date. The general ban against "amusement" construction is continued in the new order but under slightly relaxed rules.

Class B items (sinks, hardware, light fixtures, etc.) are not included in the minimum weight figures since they are not controlled materials. (The workings of the Controlled Materials Plan were described in the May 1951 *Review.)*

Even before construction came under CMP, the National Production Authority was turning down applications for allotments of building materials. Up to September 30, 2,200 applications were rejected. The bulk of these were for stores, restaurants, churches, office buildings, recreational facilities, and others deemed nonessential at this time.

The Credit Pinch* Credit terms on new one- and two-family homes have been subject to restrictions since October 12, 1950. Subsequently, various amendments to Regulation X have extended its application to all new residential, recreational, and commercial buildings.

The terms of Regulation X and companion FHA and VA regulations were relaxed somewhat by the "Defense Housing and Community Facilities and Services Act of 1951" which lowered the required down payment and extended the maximum maturity date of loans on homes costing less than $12,000.

Loans extended for all types of construction are affected to some degree by general credit restrictions, such as the rise in interest rates (and costs). The rise in interest rates over the past year or so has made government-guaranteed home mortgages less attractive to lenders, and has made financing somewhat more costly or difficult. Builders planning large projects with borrowed money, may be discouraged by the objectives of the Voluntary Credit Restraint Program.

The foregoing summary of restrictions on construction suggests that construction activity will inevitably be depressed by one set of circumstances or another. That is only one side of the picture, however, and the remainder of this article deals with the major stimulating forces that are present.

INCENTIVES

Government Stimuli to Residential Construction The most widely known government aid to construction is the mortgage-insurance program of the Federal Housing Administration. In the postwar period this was supplemented by the mortgage-guarantee program of the Veterans' Administration. These programs made it easier for the home purchaser to borrow by offering longer maturities, smaller down payments, and lower interest rates than are available under conventional loans. Until the recent rise in interest rates, lending institutions were usually glad to accept these loans, in spite of the lower return, because of the insurance principle. During the present emergency, however, FHA and VA terms have been tightened but these mortgage-insurance programs have to be considered incentives to the prospective home-builders whenever loanable funds are available.

During 1950, FHA and VA insured and guaranteed loans accounted for slightly more than one-third of the recorded dollar volume of all nonfarm mortgages of $20,000 or less, while, in terms of dwelling units, FHA and VA starts aggregated one-half

*Only two types of credit controls are mentioned here. However, credit curbs have been discussed in the following issues of the *Review:*

September	1951	"Credit Restraint—Its Necessity and Impact"
June	1951	"Residential Construction Boom Begins to Deflate" and "Program for Voluntary Credit Restraint"
March	1951	"Inflation and the Curbs on Real Estate"
September	1950	"Residential Construction"

of all private starts. In other words, their activities are involved in a sizeable portion of the market.

Less widely known, but important to the recent housing boom, are the activities of the Federal National Mortgage Association, or "Fannie Mae", in providing a secondary market for government-underwritten home mortgages. The FNMA is authorized to buy and sell FHA and VA guaranteed home mortgages, subject to certain statutory restrictions. By increasing the liquidity of insured mortgages, this type of investment is enhanced in the eyes of lending institutions.

The Defense Housing Act of 1951 restored the authority of FNMA to make advance commitments between September 1 and December 31 of this year. The amount outstanding may not exceed $200 million and the mortgages must cover Housing and Home Finance Agency programmed housing in critical defense areas, rental housing certified by the Department of Defense, or housing in disaster areas. On September 30, FNMA had gross authorizations totalling $2,750 million. Of this amount, $988 million was available for the additional purchase of eligible mortgages with about $600 million earmarked for mortgages of the three types just mentioned including the $200 million set aside for advance commitments.

Another aid to private residential construction is the Federal direct-loan program to veterans unable to get VA-guaranteed loans from private lenders. The VA was allowed $150 million for this purpose by the Housing Act of 1950. The Defense Housing Act of 1951 extended the operating period of the fund to June 30, 1953, and made it a revolving fund. Repayments may now be used for further loans rather than be turned back to the Treasury as before.

The HHFA also supports the prefabricated housing industry by giving direct financial assistance to the manufacturers. The Farmers' Home Administration of the Department of Agriculture gives credit aid in the construction and improvement of farm dwellings.

Incentives to Industrial Expansion

Since the outbreak of hostilities in Korea, defense-supporting industries have been urged into further expansion of their productive capacity. Although the government is empowered by the Defense Production Act to undertake direct construction on its own account, every effort is being made to stimulate private enterprise into providing the needed expansion. A variety of incentives have been developed for this purpose.

The biggest spur to industrial expansion is the rapid amortization allowed concerns expanding defense or defense-supporting facilities. Applicants are granted certificates of necessity that allow up to 100 percent of the capital improvement to be written off in five years (rather than the 25- to 30-year period normally allowed) if the proposals are approved as necessary and in accord with the defense program. Facility expansion was similarly encouraged during World War II.

This program got under way in October 1950. On August 18, 1951, a so-called moratorium was placed on the issuance of tax amortization certificates in order to review the program. As of that date, over 3,300 certificates had been issued for about $9.3 billion in new or expanded facilities. Of this total, nearly $7.3 billion was for industrial expansion, $1.4 billion for transportation and storage facilities, and the remainder for public utilities. Approximately 68 percent of the total was allowed for rapid amortization with the percentage varying downward from 100 percent according to the type of facility.

During the sixty-day moratorium, which has now ended, certificates were issued at the fastest pace ever achieved during the program. The chief beneficiaries were the most urgent projects required for the production of critical raw materials and military end-items, and those requests that would otherwise have become ineligible under the provisions of the Revenue Act of 1950. These latter requests were for facilities completed or acquired by the taxpayer between January 1 and September 22, 1950. The act required that certificates of necessity for these facilities be issued before September 23, 1951. No dollar amounts have been reported for many of the certificates issued since August 18, but it is believed that the total facility expansion called for by certificates issued to date is over $10 billion.

Original estimates of the eventual size of this program ranged from $10 to $12 billion. These figures appear to be on the conservative side in view of the expansion encouraged by certificates already issued. (On August 18, the Defense Production Administration reported that it had received 13,900 applications calling for a proposed investment of nearly $24 billion.) The larger portion of the investment proposed or begun under these certificates will go for equipment, but from one-third to one-fourth of the total will be used for new or expanded plant.

Over $1 billion worth of expansion (plant and equipment) is called for under certificates of necessity issued to Fourth District concerns. Slightly more than one-half of this amount will go to extend the District's metal producing and fabricating industries. Another 23 percent is scheduled for expansion by District manufacturers of chemicals and transportation equipment. The following tables shows the distribution of certificates issued to Fourth District concerns between January 25 and August 18, 1951 by broad industry groups:

Certificates of Necessity by Industry

Classification	Distribution* Amount Eligible Jan. 25-Aug. 18
Iron, steel, and non-ferrous metals—production and fabrication	51.6%
Transportation equipment	13.8
Chemicals and allied products (except synthetic rubber)	9.3
Electrical machinery, equipment, and supplies	6.3
Machinery (except electrical)	6.3
Petroleum and coal products	4.5
Stone, clay, and glass products	4.1
Ordnance and accessories	0.8
Rubber products (including synthetic rubber)	0.4
All other products and services	2.8
TOTAL	100.0%

* Details do not add to 100 because of rounding. Distribution based on amount eligible for rapid amortization.

The Pittsburgh and Cleveland metropolitan areas will be the location of about one-half of the expansion called for by these tax amortization certificates, in view of the large proportion of the total granted the primary and secondary metal industries. The number and amount of certificates approved through August 18 are given by geographic areas in the table at the right.

Nonmanufacturing concerns with main offices in the Fourth District received an additional $306.7 million in certificates of necessity—$220.9 million for rail and water transportation and $85.8 million for iron ore mining.

In addition to the tax amortization program, other incentives are offered industry. The Defense Production Act made provision for direct and guaranteed loans for facility expansion where private capital was not available. Most of these loans involve rapid amortization. Regulation V loan-guarantees will be extended to aid the financing of new facilities for machine tool production to the extent necessary for the fulfillment of defense requirements. V-loans, however, are primarily available for defense contractors needing additional working capital.

Other Construction Spurs

Direct construction by the Department of Defense or the Atomic Energy Commission frequently requires expansion of many types of construction in the immediate area. Installations of the AEC require tremendous amounts of electrical energy and water and may necessitate expansion of the locality's electric power and water pumping plants. Community facilities and housing may have to be increased. Transportation may have to be improved or extended. Since much of this expansion is left to private enterprise (where it is willing and able to provide it), direct construction by the government oftentimes spurs construction activity in subsidiary fields.

New or expanded community facilities and housing will be encouraged in critical defense areas and near new AEC and military installations. Private capital is given the first chance at this construction and is encouraged to undertake it by easing or suspending some of the regulations.

Certificates of Necessity (1) by Metropolitan Area

Metropolitan Area	Number of certificates	Amount approved (proposed investment) (000)
Akron	29	$ 22,023
Canton	24	16,536
Cincinnati	29	42,075
Cleveland	94	178,532
Columbus	7	960
Dayton	16	32,985
Erie	2	147
Hamilton-Middletown	6	49,645
Huntington-Ashland[2]	4	50,700
Lima	2	10,506
Lorain-Elyria	7	5,472
Pittsburgh	101	376,087
Springfield	1	1,714
Toledo	9	8,582
Wheeling-Steubenville	19	49,399
Youngstown	33	57,965
Total 16 Metropolitan Areas	383	903,328
Total Fourth District[3]	461	1,166,817
Total United States	2,782	7,295,122

[1] Does not include transportation, storage, or public utilities.
[2] Huntington-Ashland total is 7 certificates aggregating $55,983,000.
[3] 16-metropolitan—area total plus 78 certificates totaling $263,489,000 granted to Ohio companies lying outside these metropolitan areas.
Source: Defense Production Administration (DPA-128, September 19, 1951)

The net effect of the unprecedented combination of restraints and incentives will probably have sharply varying impacts upon the various segments of the construction industry. The following charts are designed to show the recent historical pattern of the more important branches of the industry in this District and the results of the first year of construction under unparalleled conditions.

Industry Outlook

Summing up the foregoing factors in terms of their effect on the construction industry shows continued but moderate declines in total dollar volume of Fourth District contract awards during recent months. Continued high levels of activity in industrial and utility con-

(CONTINUED ON PAGE 6)

Pork Prices—How Much Lower?

THE second-largest spring pig crop in history is now moving through market channels, and a note of anxiety exists among followers of the hog market who recall the flooded markets and depressed prices which accompanied the movement of pigs during the fall and winter of the 1943 record year. In the absence of Federal price support (discontinued in 1950) the free market mechanism will determine the outcome.

Neither consumer nor farmer would likely benefit, in the long run, if prices for the remainder of the current crop were to drop excessively. Depressed hog prices are not conducive to the maintenance of high production.

The current situation is enough different from the 1943 record year, however, that considerable optimism is justified at the farm level. It would now take 13% more hogs to provide the same per capita relationship that existed in 1943, because there are 18 million more pork consumers in the country. Furthermore, consumer demand for pork is stronger due to higher incomes, and higher prices and short supplies of other meats, particularly beef.

Fall Price Decline Is Seasonal A drop in hog prices during late summer and early fall is not abnormal, as indicated in the accompanying chart. This arises from the fact that the natural mating seasons for hogs are such that pigs are born in the spring and in the fall; in each case the pigs are ready for market roughly six to eight months later. This growing period varies according to the efficiency and methods of the feeder, but the concentrations of marketings is great enough to result in two periods of heavy receipts with relatively low prices during each year. The low point in prices during the spring usually occurs about May, but the lowest prices of the year prevail during November and December. On the other hand, the seasonal peaks generally occur in March and August with the latter normally being the higher. The price movement is ordinarily in an inverse proportion to the seasonal change in hog marketings.

Although the seasonal price peak this fall was lower than usual for recent years, neither the amount of decline nor the rate of decline from the peak has been as great. The number of pigs still to be marketed and the probable marketing plans of farmers would indicate that the price decline may continue until reaching a low point in the general area of $18 per cwt. by early December. This would not be greatly different from a year ago, but it would be considerably below the average of the past few years. The exact amount, duration, and rate of price decline, of course, cannot be definitely forecast in a free market.

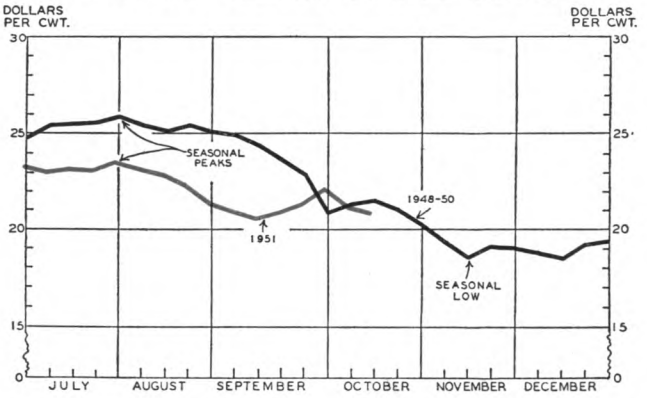
There are a few factors, in addition to the exceptionally large volume of marketings, which may tend to depress prices for the remainder of this season. One of these is the potential competition from marketings of the record-high turkey crop and from other poultry meat. Another is the comparatively high level of pork in storage, although the influence of storage on prices is usually not great. A third factor which could add impetus to the temporary downswing in prices is the possibility of uneven or panicky marketing by farmers.

To the consumer, this seasonal decline should mean lower pork prices at retail, at least for a month or so. The adjustment at retail is seldom in proportion to a change in farm prices, nor is it as long in duration, but it is still reasonable to expect that the retail prices of pork will ease a bit during the autumn months.

Neither wholesale nor retail prices showed much change when live hog prices were declining during August and September. Increases in marketing charges apparently absorbed the difference during that period. This is not uncommon, although it may have been more pronounced this year than usual.

The October "Peak" The autumn seasonal movement of prices during the postwar years has been somewhat different from that of prewar. Especially outstanding is the increasing prominence of the contra-seasonal increase occurring at about the midpoint of the fall downward swing (see chart). Several explanations of this behavior

SEASONAL TRENDS OF HOG PRICES*



. . . despite the probability that fall marketings would reach near-record volume, the seasonal decline in hogs was arrested for a few weeks in September-October. There are strong indications, however, that the downward movement has since been resumed and that the seasonal low will be reached in early December.

* Weekly average of daily quotations for choice barrows and gilts at Chicago.

Source: *Market News*, weekly, P & M A.

may be advanced. Some are perhaps peculiar only to this year. Others may have more of a long run tendency. An example of the latter is to be found in the heavier early marketings. The more progressive farm managers have observed that prices decline from the late summer high point at about the same time each year so they have timed their production to have hogs ready for market prior to the price drop. There is reason to believe that this group of producers has grown sufficiently in economic strength to force prices down earlier. Immediately after this initial surge in market receipts, there appears to be some lag which corresponds with this temporary rise in prices. When the remainder of the hogs come to market, the downward swing in price is resumed.

Other elements may be partially responsible for the several-week lag in marketings. It occurs at a time when farmers are busy with other jobs such as sowing wheat, picking corn, and harvesting soybeans. This would cause some temporary delay in marketing. Some may have been held back this year in anticipation of utilizing immature corn damaged by frost. Corn so damaged must be fed quickly to avoid spoilage.

This year, a strong consumer demand in the face of a slackening in receipts, tended to accentuate the three-week upshot in prices even more. Such demand was perhaps further accelerated by the advent of cool, more desirable pork consumption weather in late September. Still another factor is to be found in the increase in ceilings on dressed pork which was allowed during that period.

Outlook for 1952 The 1952 spring pig crop will not likely be any greater than the one currently going to market. (The 1951 fall pig crop which will be marketed next spring is larger, however.) This forecast is based primarily on the expected relationship between the cost of corn (the principal hog feed) and the price of hogs during the fall months when the sows are normally bred for spring farrowing. This so-called "hog-corn ratio" is usually a reliable indicator. Farmers tend to curtail expansion plans whenever the receipts from 100 pounds of pork will buy less than 13 bushels of corn. Indications are that the relationship between hog and corn prices may be very close to this decisive ratio during the breeding season now underway.

Prospects of a tight feed supply, space limitations, labor shortages, and increased production of other livestock and poultry will further substantiate expectations for a leveling off in hog production.

On the other hand, no sharp decline in hog number is in sight for next spring with consumer income and demand for meat high and rising and with the feed supply still large by comparison with the past few years. The fact that efficient producers can still make some profits from raising hogs even when the above-mentioned hog-corn ratio averages below twelve will tend to maintain production.

IS CONSTRUCTION BEING RETARDED?

(CONTINUED FROM PAGE 4)

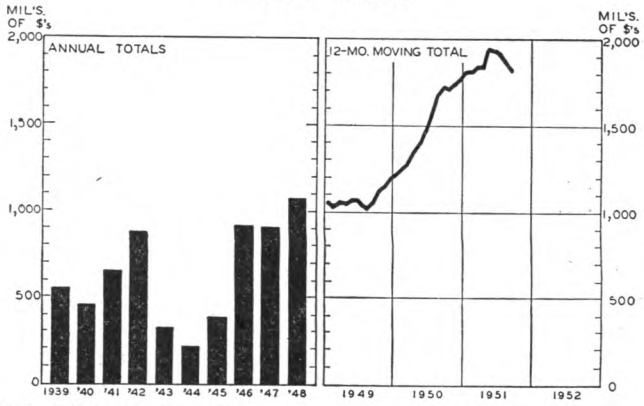
struction will be more than offset by declining activity in residential building and other forms of construction not considered essential to the defense effort.

Present indications are that the severest tests during 1951 will be shortages of structural steel and other necessary metals. Fourth-quarter allotments of structural steel by NPA were sufficient to meet the stated requirements of companies expanding production of direct military items and aluminum. Iron and steel producers received only one-half of the amount required, ferro alloys expansion got 82 percent of the amount requested, while refractories and foundries received only three-fourths of their fourth-quarter requirements. Thus, the metals expansion program is not being retarded by a lack of willingness but by material shortages.

These shortages would be eased—but not solved—by a Korean peace. On the other hand, the outbreak of a real shooting war would clamp a tight strait jacket on the industry, limiting construction to essential projects. If the *status quo* continues, expanding metals production will eventually ease the present tight supply.

Since official policy calls for the maintenance of a high level of civilian production, as well as in-

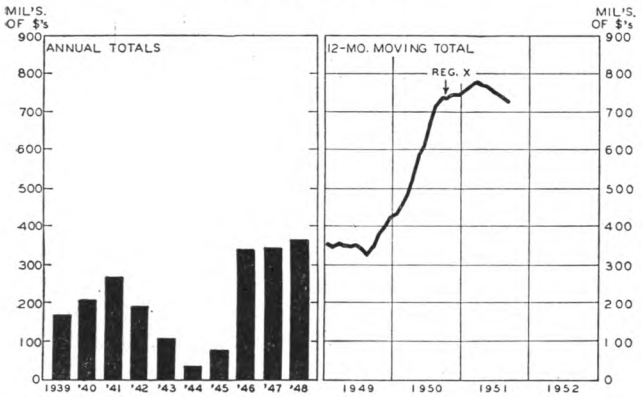
TOTAL CONSTRUCTION*
Value of Contract Awards
(Fourth District)



* *See Note on page 8*

creasing the output of military goods, the construction industry should not fare too badly. The total dollar volume of all construction awards during the first eight months of this year in the Fourth District has already topped all postwar years except 1950. Even a drop of 25 percent from the present level of activity would put 1952 totals above 1946-49 levels. So, even though some falling off in total volume is due, the industry will still be operating at high levels by all standards of comparison.

RESIDENTIAL BUILDINGS*
Value of Contract Awards
(Fourth District)



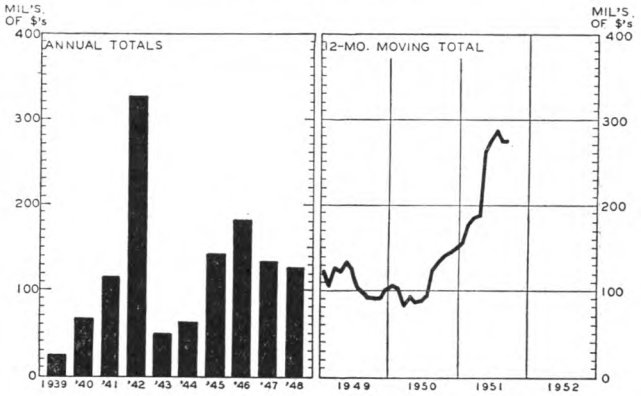
Residential Building Several factors may conspire to reduce residential construction during the next six months. The new controls on residential construction favor the smaller, less expensive home. The amounts of scarce materials the builder may self-authorize are considered adequate for small houses and the recent relaxation of mortgage terms favored the purchaser of these smaller units (homes selling for less than $12,000). Many of the frills will be missing from the homes built under controls—the extra bathroom, ornamental metal work, and so forth. Thus, the end effect of present controls will be to lower the average size of new family units as well as to reduce somewhat the number of new projects. The total dollar volume of contract awards may thus be lower but the number of new dwelling units started will not neessarily be proportionately smaller.

Manufacturing Buildings Just prior to the outbreak of hostilities in Korea contract awards for manufacturing buildings were at a postwar low. Defense requirements spurred the District's industrial firms to commit themselves to the expansion shown by the chart.

Large defense contracts, certificates of necessity, direct or guaranteed government loans, and high sustained demand for basic metal products all played a part in this expansion. The expansion is still

* *See Note on page 8*

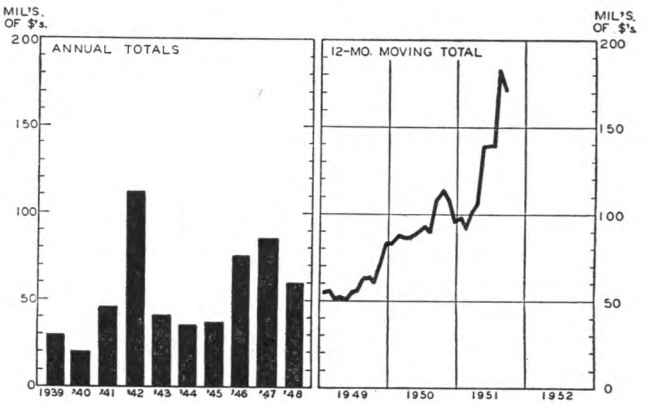
MANUFACTURING BUILDINGS*
Value of Contract Awards
(Fourth District)



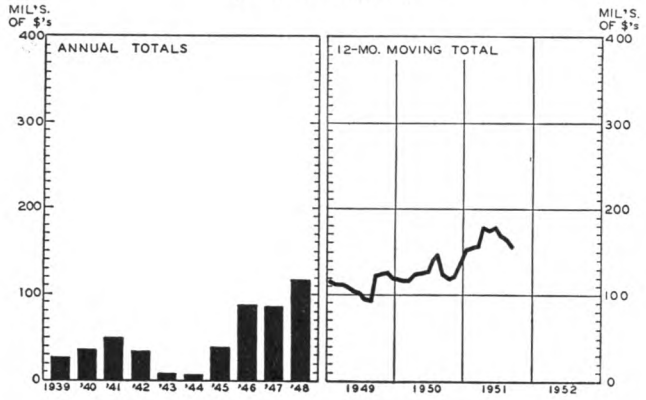
under way and should continue throughout 1952 at levels well above those achieved during 1947-49. This would be achieved merely by starting those projects covered by certificates of necessity. Industrial expansion, however, is not limited to firms granted these rapid amortization rights.

Utilities The current increase in electric power and water supply contract awards can be traced largely to the need to service the rapid expansion of industrial facilities as well as the increase in manufacturing activity in the District since Korea. Of course, the increased demand for electricity, gas, and water occasioned by the recent record expansion of the home market played a part, too. Part of this utility expansion may have been put under construction earlier than originally planned because of the sharp increase in industrial requirements. Most of this construction is considered essential to the defense effort and will receive priority assistance in obtaining materials. Some electric power plants have also received rapid-amortization rights.

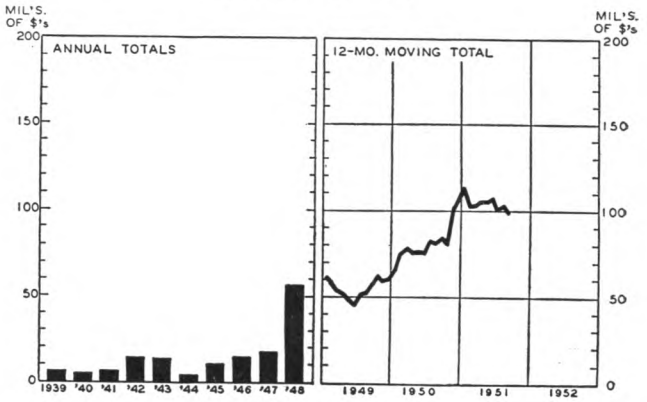
UTILITIES*
Value of Contract Awards
(Fourth District)



COMMERCIAL BUILDINGS*
Value of Contract Awards
(Fourth District)



HOSPITAL AND INSTITUTIONAL BUILDINGS*
Value of Contract Awards
(Fourth District)

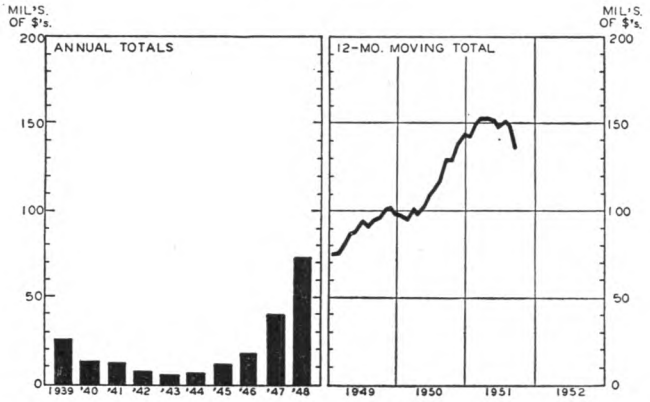


Commercial Buildings Further sharp declines in the volume of awards for commercial buildings are in prospect for the immediate future. So far this year, new projects have been authorized by the NPA on the basis of hardship, need, etc. The new material controls have altered the picture considerably. Most commercial structures will have to be postponed because of the structural steel shortage. NPA's policy with respect to this type of construction may be seen by its fourth-quarter allotments of structural steel. Builders of commercial projects were allotted only 11 percent of the structural steel they wanted—just 5 percent of the total parcelled out by NPA—and most of these structures were already under way.

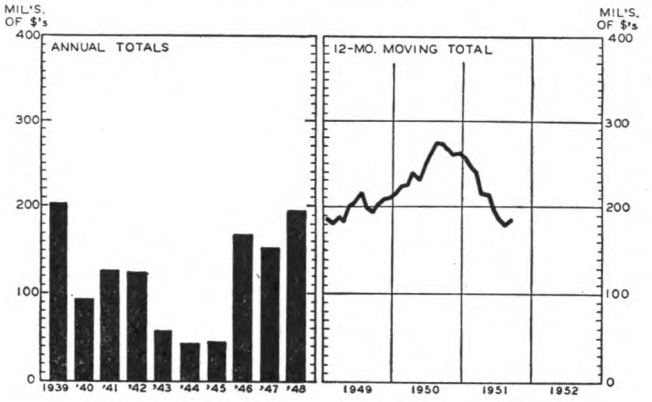
Educational, Science, Hospital, and Institutional Buildings Contracts have been awarded for school, library, and science buildings in record dollar amounts every year since 1947. Recent declines have been moderate. The same is true of hospital, sanitarium, and other institutional building awards.

This high level of activity stems from several sources. The demand on existing facilities has increased due to population growth and higher levels of income. Communities outgrew existing schools and hospitals and new communities had to be served. But, these facilities were not expanded much in face of this increased demand. A low level of activity prevailed during the depression and World War II forced the postponement of expansion plans. Then, at the war's end, many institutions found themselves unprepared for the inflation that ensued and had to raise more money to meet increasing con-

EDUCATIONAL AND SCIENCE BUILDINGS*
Value of Contract Awards
(Fourth District)



PUBLIC WORKS*
Value of Contract Awards
(Fourth District)



*NOTE FOR ALL PRECEDING CHARTS

Latest figures plotted: September. Annual totals (the bars) are given for the years 1939 through 1948. Current activity is shown by 12-month moving totals—a statistical means of making monthly figures comparable with annual totals and removing seasonal fluctuations so current trends stand out more clearly. The September 1951 point on each chart thus represents the total dollar volume of contracts awarded in the 12 months ended with September 1951.

Source: F. W. Dodge Corporation.

(CONTINUED ON PAGE 10)

Probing into the Future for Plastics

by CLYDE WILLIAMS, *Director, Battelle Memorial Institute*

From playing the role of substitute during World War II, plastics in recent years have emerged to occupy a regular position on the team of materials which serves all of us every day. Production of plastics, currently at a record annual rate of 2 billion pounds, is ten times prewar consumption. This is still not enough to satisfy unprecedented military and civilian demand. Expansion plans, however, for increasing both the supply of raw materials and the productive capacity for plastics manufacture promise that the shortage may be alleviated to some degree within the next 12 to 18 months. Moreover, when the country returns to normalcy, the ever widening circle of civilian uses assures a firm basis for continued growth.

Plastics have "come of age" because, in many cases, they do a job as well or better, and frequently at less cost, than other materials. Ease of fabrication, lightness, durability, and attractiveness, together with chemical, electrical, and heat resistance, make possible a variety of end uses perhaps unequalled in our time. Products may range from tool handles and piping to gun parts, crash helmets, toys, drapes, and packaging. Some sixty-five different plastic parts are made for airplanes; about forty-two for automobiles.

There has been a phenomenal growth in the development of plastics from petroleum. This has been another vital factor in the industry's progress. Prior to World War II, basic chemical components were derived largely as by-products from the coal industry's coke ovens. Beginning in the early 40's, however, demand for plastics far exceeded the capacity of coke ovens to supply necessary raw materials. Without the switch to petrochemicals, the advance of plastics would have been seriously restricted.

The sensational rise of petrochemicals also provides the basis for future expansion in the plastics industry. For example, it has been estimated that by 1955 the country will require over 400 million gallons of benzene annually, as compared to 232 million gallons in 1951. Benzene is an extremely important basic material for a variety of plastics, of which nylon is perhaps best known to most of us. The potential quantity of benzene that can be made from current annual crude oil output has been estimated at 825 million gallons. Only a small amount of this potential has been used so far. The bulk of the supply has come as a by-product of the coking process in the steel industry and from imports. Expansion of petroleum facilities is currently aimed at increasing benzene production by 72 million gallons per year. As further expansion becomes economically worth while, the petroleum industry has the know-how, materials, and capital to meet the call.

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.

Current shortages of plastics do not all stem from a lack of raw materials. Production capacity, in certain cases, has seriously limited the available supply, both with respect to military and non-military needs. Moreover, defense orders have seriously cut into the supply of plastics available for civilian needs. Where production is at present limited and materials are under complete allocation as, for instance, with polyethylene, the situation is quite acute. The squeeze is less tight where only partial allocation exists. In some cases, as with the phenolics, defense orders have recently increased from 20 to 50 percent and the shortage is due to become worse, at least temporarily, now that sulfuric acid allocations have been cut.

As raw materials shortages are overcome, the productive capacity of plastics manufacturers will be correspondingly increased. A doubling of capacity for the plastic known as polyethylene is seen by the end of 1952. New units for the manufacture of styrene and vinyl chloride plastics are under construction.

Current expansion plans for polystyrene, which competes with synthetic rubber for large quantities of styrene, will be restricted, at least temporarily, by the expansion of the synthetic rubber program. Since the bottleneck to adequate supplies of styrene is largely a result of the scarcity of benzene, methods are being studied for making similar type plastic materials from toluene. New derivatives, such as the methyl styrenes, may replace styrene for less exacting applications like coatings, if toluene remains more available than benzene.

Paralleling the large volume increase of plastics, new kinds of plastics have appeared during the past year. Fiber-forming plastics bearing the trade names Orlon, Dacron, Dynel, and Acrilan are currently being introduced. Another new plastic series, known as "Epoxy Resins", offer valuable additions to the casting, coating, and adhesive fields.

New applications for existing types of plastic materials are constantly in prospect as more is learned about the composition and methods of producing them. In many cases, a comparatively small improvement in properties will open up an entirely new field of use. Polystyrene, now less brittle than formerly, is finding new uses. Notable among these is the door seal for home refrigerators. Other new plastic products include lenses, housings for hand tools, protective films, protective coatings and linings, heat-resistant laminated structures, gaskets and gears, sealants, adhesives, and electrical insulators.

In the molding of plastic materials, great advances have been made in the production of larger articles. Television cabinets weighing over forty pounds are now molded, resulting in a large saving in fabrication costs. Such molded shapes have been made possible by the production of very large hydraulic presses and also by the introduction of resins with improved flow characteristics. Capacities of injection-molding machines have also been greatly increased. Machines of 300-ounce capacity are now available. Much larger ones are being planned.

Research in plastic materials has already established a firm foundation for future growth. When the knowledge

that was possessed of the structure of plastic materials twenty-five years ago is examined, the tremendous strides that have been made become apparent. The experience and know-how that have already been gained will serve as a jumping off point for probing further into ways and means of improving the properties of these extremely versatile materials. As this knowledge is acquired and as raw materials supply and productive capacity are improved, the volume and variety of plastic products, already great, will multiply.

IS CONSTRUCTION BEING RETARDED?

(CONTINUED FROM PAGE 8)

struction costs. Thus, it was not until 1947 or later that most of these projects got under way.

Construction of these facilities, however, falls under the jurisdiction of the Federal Security Agency and further expansion in the near term will depend upon how much scarce material FSA is allowed to dole out. It seems likely that very sharp cuts for this class of work are in prospect.

Public Works Public works awards during the current year will probably be the smallest since 1945 because of the restraint exercised by local, state, and Federal governmental agencies charged with constructing and maintaining roads, bridges, sewerage systems, parks, etc. Although the sharp decline cannot continue past the level necessary to maintain public health, safety, or welfare, World War II experience would seem to allow a further decline to about one-half the present level.

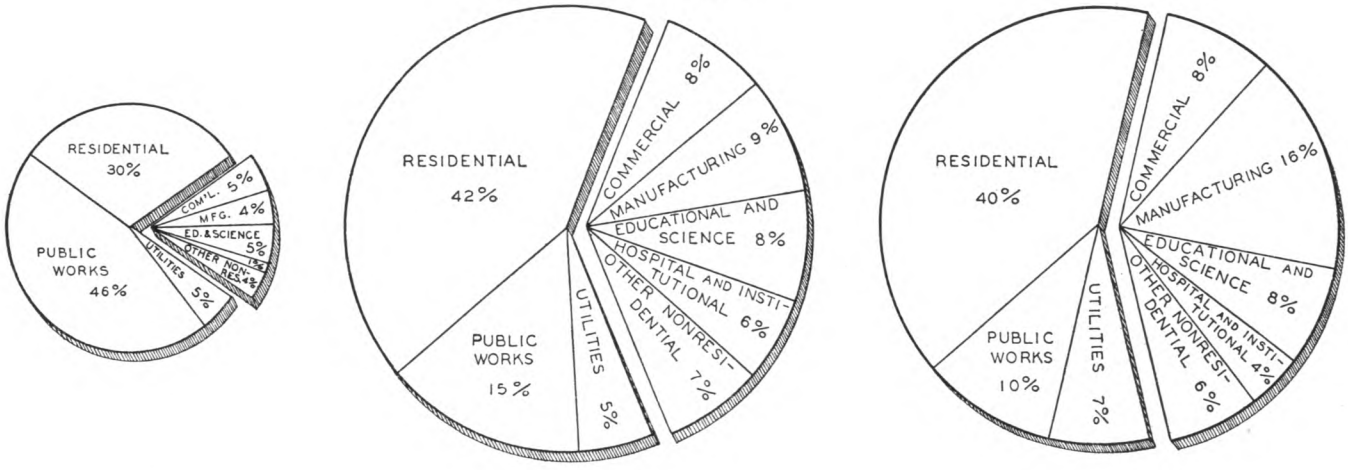
Long Term Changes The accompanying pie charts illustrate how the Fourth District building dollar was spent in 1939, 1950, and during the first 9 months of this year as reported by the F. W. Dodge Corporation. The area of each pie reflects the dollar value for each year shown with no adjustment for changes in construction costs. The dollar value of contract awards rose 207 percent from 1939 to the present. The composite construction cost index, however, has advanced about 137 percent in this same interval. On a rough basis, then, physical volume in 1951 is only about 30 percent greater than in 1939.

The most noticeable change between 1939 and 1950 is the decline in the importance of public works awards. Contract awards for public works projects accounted for 46¢ of every dollar's worth of construction in 1939 (when WPA and PWA were very important factors) as compared with 15¢ out of every dollar in 1950 and only 10¢ so far this year. Also, during the first 9 months of this year, 16¢ out of every building dollar went for new or expanded industrial facilities as compared with 9¢ in 1950 and 4¢ in 1939. This caused nonresidential building activity—the slice of pie in the diagram—to edge ahead of residential building.

CONSTRUCTION CONTRACTS AWARDED

by type of structure

(Fourth District)



1939 1950 1951 (4TH Q. ESTIMATED)

(Percentage distribution is based on contracts awarded during first nine months.)

FINANCIAL AND OTHER BUSINESS STATISTICS

Time Deposits* at 54 Banks in 12 Fourth District Cities

(Compiled October 5, and released for publication October 6)

City and Number of Banks	Time Deposits Sept. 26, 1951	Average Weekly Change During: Sept. 1951	Aug. 1951	Sept. 1950
Cleveland (4)	$ 887,847,000	+$ 954,000	+$ 650,000	—$356,000
Pittsburgh (9)	500,269,000H	+ 501,000	+ 694,000	— 33,000
Cincinnati (7)	176,325,000	+ 90,000	+ 91,000	— 143,000
Akron (3)	100,486,000	— 20,000	+ 109,000	— 77,000
Toledo (4)	110,683,000H	+ 69,000	+ 246,000	+ 42,000
Columbus (3)	87,525,000H	+ 14,000	+ 47,000	+ 38,000
Youngstown (3)	63,501,000	+ 74,000	+ 99,000	— 27,000
Dayton (3)	47,048,000	+ 85,000	+ 121,000	— 71,000
Canton (5)	44,001,000	+ 47,000	+ 270,000	— 50,000
Erie (3)	42,443,000H	+ 105,000	+ 81,000	+ 23,000
Wheeling (5)	26,643,000	+ 42,000	— 4,000	+ 14,000
Lexington (5)	10,924,000	— 13,000	— 32,000	+ 4,000
TOTAL—12 Cities	$2,097,695,000H	+$1,948,000	+$2,372,000	—$636,000

H—Denotes new all-time high.

The expansion of time deposits at reporting banks in 12 Fourth District cities continued for the sixth consecutive month in September, with an average weekly increase of $1,948,000. This was somewhat below the rate of increase in August, but contrasted sharply with declines of $636,000 and $560,000 per week in September, 1950 and 1949, respectively. At the end of the month, time deposits stood at a new all-time high of $2,097,695,000, for a net gain of $61,000,000 (3%) over the year-ago figure. Most of this gain, $56,000,000, occurred in the past six months.

Every city except **Akron** and **Lexington** reported an inflow of savings during September, and in both of these cities the reduction in savings was relatively small.

At **Pittsburgh** banks, the average weekly gain of $501,000 lifted time deposits to a new record of more than $½ billion. September marked the twelfth successive month of expansion in time accounts for Pittsburgh, for an aggregate gain of $22 million (nearly 5%).

New all-time highs were also registered by **Toledo, Columbus,** and **Erie**. In each of these cities time deposits have increased in ten of the past twelve months.

The rate of increase at **Cleveland** banks, $954,000 per week, was one of the highest reported in the six months of expansion this year. At the end of September, time deposits at Cleveland banks were $22 million above the three-year low of last September, and virtually the same as at the beginning of 1950.

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
Feb.	4 293	Feb.	3 287		29 418	Aug.	4 314
	11 308		10 359	Aug.	5 374		11 309
	18 279		17 354		12 344		18 310
	25 255		24 365		19 330		25 315
Mar.	4 258	Mar.	3 302		26 323	Sept.	1 290
	11 279		10 293	Sept.	2 295		8 315
	18 264		17 266		9 324		15 313
	25 263		24 251		16 345		22 319
Apr.	1 285		31 293		23 318		29 356
	8 279	Apr.	7 297		30 335	Oct.	6 291
	15 262		14 311	Oct.	7 297		13 332
	22 283		21 323		14 307		20 316
	29 334		28 358		21 287		27 312
May	6 299	May	5 336		28 298	Nov.	3 .....
	13 296		12 312	Nov.	4 280		10 .....
	20 299		19 313		11 281		17 .....
	27 295		26 312		18 288		24 .....
June	3 295	June	2 309		25 221	Dec.	1 .....
	10 314		9 311	Dec.	2 195		8 .....
	17 309		16 304		9 328		15 .....
	24 306		23 312		16 334		22 .....
			30 325		23 314		29 .....
					30 342		

*** 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*—September 1951 in 31 Fourth District Cities

(In thousands of dollars)

(Compiled October 16, and released for publication October 17)

No. of Reporting Banks		Sept. 1951	% Change from Year Ago	3 Months Ended Sept. 1951	% Change from Year Ago
181	ALL 31 CENTERS	$9,032,445	+ 7.4%	$27,701,464	+12.4%
	10 LARGEST CENTERS:				
5	Akron ... Ohio	$ 341,546	+21.8%	$1,054,089	+25.4%
5	Canton ... Ohio	140,319	+ 2.5	434,032	+12.0
14	Cincinnati ... Ohio	1,100,243	+ 3.4	3,394,106	+10.3
10	Cleveland ... Ohio	2,317,128	+ 9.3	7,206,848	+16.8
7	Columbus ... Ohio	607,130	+ 5.9	1,855,208	+ 1.8
4	Dayton ... Ohio	277,090	— 4.1	880,661	+ 7.9
6	Toledo ... Ohio	420,282	+ 1.5	1,310,853	+ 8.2
4	Youngstown ... Ohio	206,377	+18.6	613,921	+15.6
5	Erie ... Penna.	119,584	+14.5	347,172	+12.2
44	Pittsburgh ... Penna.	2,720,469	+ 8.6	8,230,307	+13.0
104	TOTAL	$8,250,168	+ 7.7%	$25,327,197	+12.8%
	21 OTHER CENTERS				
9	Covington-Newport ... Ky.	$44,143	— 4.7%	$135,877	— 2.1%
6	Lexington ... Ky.	62,406	—0—	195,525	+ 3.6
3	Elyria ... Ohio	27,189	+ 9.6	81,578	+15.7
3	Hamilton ... Ohio	47,629	+ 6.3	151,479	+14.5
2	Lima ... Ohio	55,900	+ 4.3	178,277	+10.9
5	Lorain ... Ohio	19,364	+ 0.3	64,365	+13.5
4	Mansfield ... Ohio	50,398	— 5.3	153,001	+ 0.6
2	Middletown ... Ohio	53,363	+24.5	160,520	+28.8
3	Portsmouth ... Ohio	24,132	— 4.9	71,714	+ 2.1
3	Springfield ... Ohio	52,502	+ 8.9	161,758	+10.3
4	Steubenville ... Ohio	27,018	+ 1.6	81,829	+ 5.6
2	Warren ... Ohio	53,534	+11.6	155,227	+15.2
3	Zanesville ... Ohio	30,744	+ 7.6	93,055	+ 4.7
3	Butler ... Penna.	39,071	+12.5	113,069	+10.7
1	Franklin ... Penna.	7,953	— 3.0	23,738	+ 0.4
2	Greensburg ... Penna.	25,488	+ 7.6	77,265	+ 7.2
4	Kittanning ... Penna.	12,325	+ 8.0	36,496	+10.7
3	Meadville ... Penna.	15,364	+ 4.4	45,606	+ 3.6
4	Oil City ... Penna.	20,357	— 2.2	59,834	— 3.2
5	Sharon ... Penna.	38,204	+17.7	108,355	+15.2
6	Wheeling ... W. Va.	75,193	— 4.0	225,699	+ 1.6
77	TOTAL	$ 782,277	+ 4.5%	$ 2,374,267	+ 8.1%

* Debits to all deposit accounts except interbank balances.

Debits to deposit accounts (except interbank) in 31 Fourth District cities declined contra-seasonally in September, totalling $9,032,000,000, the smallest monthly figure since February. The year-to-year margin of increase in debit volume has now been narrowed to 7.4%, and the rate of deposit turnover last month was virtually the same as in September 1950. This marks the first month since June 1950 that deposit turnover has not noticeably exceeded the year-ago rate.

TEN LARGEST CENTERS

All of the larger centers except **Erie** reported a smaller debits volume in September than in the previous month, but the aggregate volume was 7.7% larger than in comparable month of 1950, and represents an all-time high for the month. For the fifth consecutive month, **Akron** reported the largest year-to-year gain (21.8%). **Youngstown** and **Erie** were next with increments of more than 14%.

TWENTY-ONE SMALLER CENTERS

With debit volume in September below the August figure at a majority of the smaller centers also, the year-to-year gain at these centers (4.5%) continued to fall short of the increment at the large cities, as has been the case in each month this year.

Elyria, Middletown, Warren, Butler and **Sharon** continued among the leaders in year-to-year increments. In six of the smaller centers, however, debit volume in September fell short of the corresponding month of 1950.

Indexes of Department Store Sales and Stocks

	Daily Average for 1935-1939 = 100: Adjusted for Seasonal Variation Sept. 1951	Aug. 1951	Sept. 1950	Without Seasonal Adjustment Sept. 1951	Aug. 1951	Sept. 1950
SALES:						
Akron (6)	343	339	340	347	288	343
Canton (5)	425	391	410	433	344	418
Cincinnati (8)	313	326	340	316	271	343
Cleveland (11)	301	287	310	301	252	310
Columbus (5)	372	360	370	372	303	370
Erie (4)	380	388	390	376	322	386
Pittsburgh (8)	301	286	311	298	243	307
Springfield (3)	308	310	318	302	257	312
Toledo (6)	340	312	336	337	262	333
Wheeling (6)	267	274	274	273	208	279
Youngstown (3)	401	365	373	397	317	369
District (98)	326	312	333	329	271	337
STOCKS:						
District	315	323	296	345	341	324

SUMMARY OF NATIONAL BUSINESS CONDITIONS

By the Board of Governors of the Federal Reserve System

(Released for Publication October 30, 1951)

Industrial production and employment have remained somewhat below the advanced levels reached during the spring of this year. Retail sales of some goods have expanded above the reduced second-quarter level, while sales of new cars have declined again. Wholesale prices of agricultural commodities have strengthened since early September and the consumers price index has risen. Common stock prices sold off in the latter part of October.

Industrial production

The Board's industrial production index was 219 per cent of the 1935-39 average in September, as compared with 217 in August and 223 in April. Continued comparative stability is indicated for October as output of consumer goods in general has apparently remained at reduced levels.

Activity in most industries producing munitions and capital equipment expanded further in September. Production at steel mills increased to 101 per cent of capacity and was scheduled at 102 per cent in October. Output of nonferrous metals increased in late September and early October following production interruptions earlier. Lumber production continued at the curtailed August rate. Auto assemblies changed little, while output of major household durable goods rose moderately from the sharply reduced July-August level.

Output in nondurable goods industries remained about 4 per cent below early spring record levels. There were further curtailments at textile mills. Production of paperboard also continued to decline in September and early October to a rate which was about one-sixth lower than in the spring. Output of chemical, petroleum, and rubber products was maintained at recent high levels.

Record production of minerals in September resulted largely from a further expansion of crude petroleum and iron ore. Stocks of petroleum products are currently large, and, effective November 1, allowable crude oil production from Texas fields has been somewhat reduced.

Construction

Value of construction contract awards, according to the F. W. Dodge Corporation, continued to decrease in September, reflecting largely further reductions in public awards from earlier record rates. The total value of construction put in place, allowing for seasonal variation, changed little. The number of new dwelling units started, however, increased somewhat.

Employment

Total employment in nonagricultural establishments, seasonally adjusted, declined slightly further in September, as manufacturing and construction employment decreased and most other lines showed little change. The average work-week at factories changed little and was 40.5 hours, while hourly earning, after several months of stability, advanced somewhat to a new peak of $1.61. Unemployment continued at the low level of 1.6 million in September.

Agriculture

Crop conditions changed little during September except for slight decreases indicated in cotton and corn prospects. Cattle marketings continued at a reduced rate from mid-September to the third week of October and hog marketings showed little further increase. Total meat slaughtering during this period was 4 per cent below a year ago.

Distribution

Department store sales in September and the first three weeks of October rose less than seasonally, but remained somewhat above the reduced second quarter level. Seasonally adjusted stocks at department stores declined further in September. Sales of new passenger automobiles showed a marked decline after mid-September owing partly to seasonal influences.

Commodity prices

The average level of wholesale commodity prices increased slightly from mid-September to the fourth week of October, reflecting advances in prices of some agricultural commodities. Prices of hides and textile products declined further and Federal ceilings for lead and zinc were raised but industrial commodities generally changed little.

The consumers price index rose .6 per cent in September, reflecting increases in all groups of items. The most important rise—3 per cent—was shown by apparel.

Bank credit

Seasonal borrowing at banks to finance the distribution and processing of crops, which had begun in August, accelerated in September and the early part of October. Bank loans to finance direct and defense-supporting activities expanded further.

Interest rates charged by commercial banks on short-term business loans averaged 3.06 in September, little changed from the average in June. Rates increased slightly in New York and other Northern and Eastern cities but declined somewhat in the South and West. In mid-October, leading city banks announced a further increase in the prime rate to business borrowers, from 2½ per cent to 2¾ per cent.

Reserve System holdings of U. S. Government securities increased during late September and early October as a result of purchases in connection with Treasury refinancing operations. Subsequently, however, holdings declined.

Security markets

Common stock prices advanced somewhat further during the first two weeks of October but declined sharply in the third week to levels prevailing in mid-August. Yields on high-grade corporate bonds rose during the three-week period, while yields on long-term U. S. Government bonds showed little change. The Treasury sold for cash for delivery October 23, 1¼ billion dollars of 144-day tax anticipation bills on which the average discount rate was 1.55 per cent.