MONTHLY

Business Review

JULY 1953

CONTENTS

FINANCE • INDUSTRY • AGRICULTURE • TRADE

FOURTH FEDERAL RESERVE DISTRICT

Vol. 35—No. 7 Federal Reserve Bank of Cleveland Cleveland 1, Ohio

A Half Year of Tight Money

THE financial story of the first half of 1953 revolves around a very strong current and prospective demand for credit from both public and private borrowers which tended to outrun a large supply of savings available for investment, with a consequent rapid rise in interest rates.

Demand for both short and long-term credit by business and consumers and government continued strong. The supply of savings out of current personal income also remained substantial, and at least in some forms appeared to be expanding further. Business savings, in the form of depreciation allowances and retained earnings, appear to have been well maintained in the light of preliminary profit statements.

Rise in Bond Yields Yields on U. S. Government securities in early June reached the highest levels in almost two decades. Short and long-term yields alike shared in the sharp rise since the early months of this year. Yields on the 2½'s maturing in September 1972, were 3.13% early in June, compared with an average of about 2.80% at the beginning of the year. Medium-term Treasury bonds, maturing in 3-5 years, yielded an average of 2.85% in May, compared with 2.40% four months earlier. New Treasury bills, maturing in only three months, were sold at an average annual yield of 2.20% in May, compared with 2.02% in February.

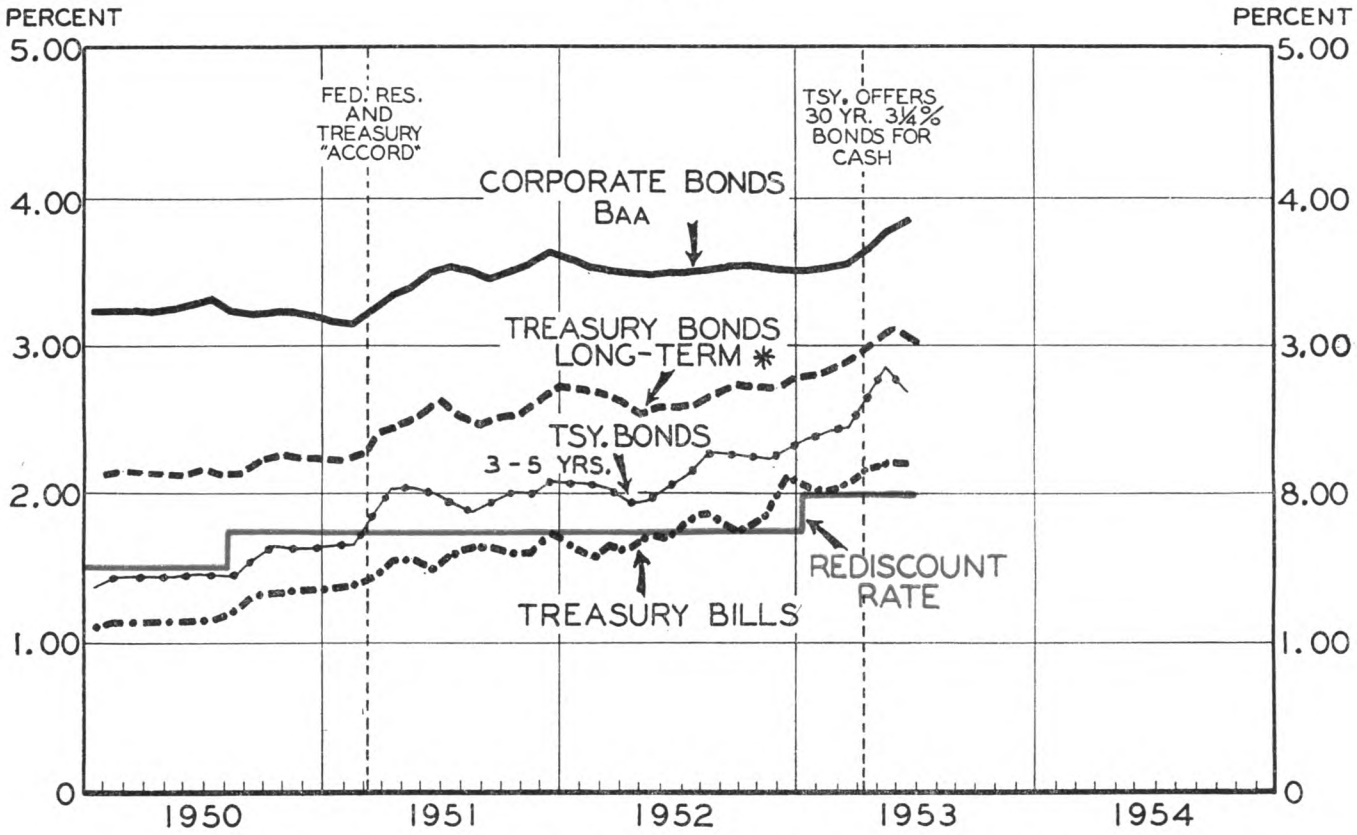
The rise in interest yields was not confined to U.S. Government securities. Corporate bonds, rated BAA, were yielding 3.88% in mid-June as compared with 3.51% at the beginning of the year. An even sharper rise was registered by high-grade municipal bonds, from 2.47% in mid-January to 3.01% in mid-June.

Interest rates charged on bank loans also moved higher in recent months. Several large New York City banks announced increases in the rate on prime quality commercial loans from 3% to 3¼% in April. In this District also, interest rates on large business loans have risen several percentage points in the past few months. Increases were also reported in the rates charged on call loans to security dealers and investors, and on some types of consumer instalment loans.

Most of the rise in the cost of money this year occurred in the second quarter. Two years ago, a fairly sharp rise in money rates had occurred following the announcement of the Treasury-Federal Reserve "accord" in March 1951, and the adoption of a more flexible policy by the Federal Reserve System with regard to the bond market. During 1952, long-term rates had shown little net change, although short-term rates had worked gradually higher. In the early months of this year, the increase in rates was generally moderate.

Corporate Security Flotations Heavy External financing of plant and equipment expenditures and additions to working capital by business corporations continued to impose heavy demands on the capital market in the first half of this year. It is estimated that security flotations to provide new capital aggregated approximately $4,900 million in the past six months, somewhat above the record total for the comparable period of last year. As has been the usual case throughout the post-war period, most of the new capital raised was in the form of long-term debt.

YIELDS ON SELECTED SECURITIES
1950 - 1953



. . . yields on government and corporate securities rose sharply in the first five months of 1953, to long-time high levels. In June, the rise in yields on Treasury securities was reversed, at least temporarily.

* 2½'s September 1967-72.

NOTE: Figures plotted for June partially estimated.

Manufacturing corporations have raised a considerably smaller volume of new capital through external financing so far this year than was the case in the first half of 1952. New flotations by public utilities, however, closely paralleled the 1952 rate of issue, and corporations engaged in real estate and financial activities sharply increased their demands for new capital. The need of financial businesses, such as sales finance companies, to raise additional long-term funds is presumably associated closely with the rapid expansion of consumer credit during the past fifteen months.

Mortgage Demand Strong With construction contracts awarded for both residential and nonresidential buildings running ahead of the near-record 1952 value in the early part of this year, the demand for mortgage credit also continued heavy. Although repayments of previously accumulated mortgage debt continued to rise, they were by no means adequate to finance the volume of new construction. Proceeds arising from the transfer of existing properties do not necessarily find their way into the mortgage market, and new credit thus continued to be required to finance such transfers. During 1952, nearly $9 billion of mortgage debt was incurred in excess of repayments, chiefly on residential properties. Data available to date indicate that a similar expansion in mortgage debt may occur this year.

Instalment Credit Expands Record (or near-record) production and sales of automobiles in the first half of this year contributed to a further rapid expansion in the volume of consumer instalment credit, which is estimated to have reached nearly $21 billion by mid-year. The usual slight seasonal shrinkage in the outstanding volume of automobile credit was not apparent in the early months of this year, perhaps reflecting in part aggressive promotion of new models. Stepped-up merchandising programs, involving, among other things,

the exploitation of liberal trade-in inducements, have presumably helped to spur sales of household appliances and T.V. sets. Nominal down payments and long instalment contracts have added to the volume of credit demanded to finance these sales. No letup, other than may be ascribed to seasonal factors in the early months, has been apparent in the demand for home repair and modernization loans, while personal instalment loans for a variety of purposes have advanced steadily, apart from the usual bulge in March associated with tax payments.

Demand for credit to finance purchases by consumers has been the chief factor leading to an expansion of bank loans in the first half of the year. Of this expansion, the greatest part was in the form of intermediate-term instalment credit, with long-term real estate credit comprising the remainder of the expansion.

Short-Term Business Borrowing Stable

During the first half of the year, there was relatively little net change in the volume of short-term business credit outstanding at banks. Presumably increased requirements for bank credit to finance near-record output and payrolls were offset by other factors, including a shrinkage in inventory financing in some industries.

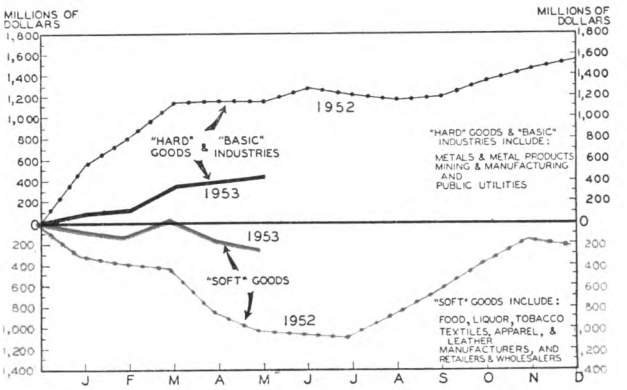
Producers of metals and metal products borrowed from the banks on balance during the first five months of the year, as also did public utility companies. The need for cash to avoid a drain of working capital through tax payments appeared to be an important factor in their credit requirements. Compared with the early part of 1952, however, the expansion of bank loans to the metals and public utility industry groups was much smaller.

Companies engaged in the production and sale of soft goods (including food, liquor, tobacco, textile, apparel and leather products) appeared to be less able to reduce their bank debt than a year earlier despite the absence of any pronounced price increases. During the first five months of this year, the aggregate shrinkage in loans to such businesses reported by banks in leading cities throughout the country was just over $200 million, compared with a decline of more than $1 billion in the same period of 1952.

Public Deficit Financing

Added to the pressure on the money market of the heavy private demands for funds to finance near-record production, capital expenditures, consumer purchases, and tax payments, the Treasury found it necessary during the second quarter to borrow directly from the public nearly $4 billion. The borrowing was necessary in order to provide funds to help finance defense expenditures and to redeem for cash matured securities turned in during the spring and summer. With the exception of 1950, the fiscal year ended June 30,

CUMULATIVE NET CHANGE IN LARGE BUSINESS LOANS
By Business Group
(Weekly Reporting Banks—United States)
1952 and 1953



. . . outstanding bank loans to basic industries and producers of "hard" goods increased at a much slower rate in the early months of 1953 than in the comparable period of last year. The seasonal reduction of loans by "soft-goods" businesses, however, was considerably less than a year earlier.

1953 was the first such fiscal period since World War II, during which the Treasury was a net borrower directly from the public. In the previous year, a shortfall of tax receipts was financed, on balance, solely by borrowing from Government Trust Accounts.

The Treasury's borrowing needs in the past three months were met, on balance, from the current savings of the nonbank public. Such nonbank borrowing, in its effect upon the money market and economic conditions, is very similar to taxation.

The chief medium used by the Treasury in its recent borrowing has been short-term bills. The weekly rollover of these issues is in process of being raised to $1,500 million, providing the Treasury with more than $2 billion of new money. Early in June, $800 million of special tax anticipation bills were sold, at a yield of nearly 2½%.

Long-term funds were also raised by the Treasury in the second quarter. For the first time since 1945, marketable long-term bonds were offered for cash in April. More than $1 billion of the bonds, maturing in 30 years, were sold. The coupon rate on the bonds is 3¼%, the highest in many years, and this attracted an adequate volume of investment funds for the issue to be placed outside the banking system with virtually no indirect recourse to bank credit. Holders of series F and G savings bonds maturing this year were also given the option of exchanging them for the new 3¼% bonds.

Other Treasury security offerings, in exchange for called or maturing issues, were made at rates estimated to stimulate their acceptance without the need for Federal Reserve support.

Recognition that the borrowing needs of the Treasury will be heavy over the remainder of the year and will add to prevailing heavy private demands for credit has been a basic factor contributing to the recent rise in money rates.

Additional pressure on the capital market derived from the extensive development and improvement projects of state and local governments. States and municipalities floated a record $4 billion of securities in 1952, and were borrowing at an even faster pace in the first half of this year. The proceeds of most of these security flotations go to finance such projects as highway construction, and the provision of schools, and recreational and health facilities.

Nonbank Credit Supply Rises As has been indicated above, the non-inflationary source of the Treasury's borrowing was current private savings. These savings also had to provide the credit required by private business, consumers, and state and local governments.

Important sources of nonbank savings are depreciation allowances and retained profits of businesses. In 1952 approximately $19 billion dollars of funds were provided by such corporate saving, despite the curtailment of production and profits as a result of last summer's steel shutdown.

In the first half of this year, with sales volume at record levels, corporate profits are estimated to have exceeded the year-ago figure. Depreciation allowances also expanded further, as a result of previous increases in the stock of capital assets, and the eligibility of additional plant and equipment for accelerated amortization. The tax bite, however, has been larger, reaching an estimated record annual rate of almost $24½ billion in the first quarter. The accrual of taxes provides only a temporary source of funds for business. Tax payments, on the other hand, fall heavily in the first half of the year, with 80 percent of taxes on 1952 profits due by mid-year. Actual tax payments in the first half of the year exceeded current tax accruals, thereby tending to tighten the working capital position of corporations. Nevertheless, a substantial proportion of the savings required to meet the credit and capital needs of the economy has been provided by the internal funds of corporate business.

In addition to corporate saving, saving by or for individuals has continued at a rapid rate. The net inflow of funds into life insurance companies, according to early figures, appears to have been at a rate adequate to sustain an increase in assets not far short of the $5 billion gain last year. Net purchases of shares and deposits at savings and loan associations in the early months of the year indicated a growth of savings capital at least equal to the record $3 billion expansion of 1952.

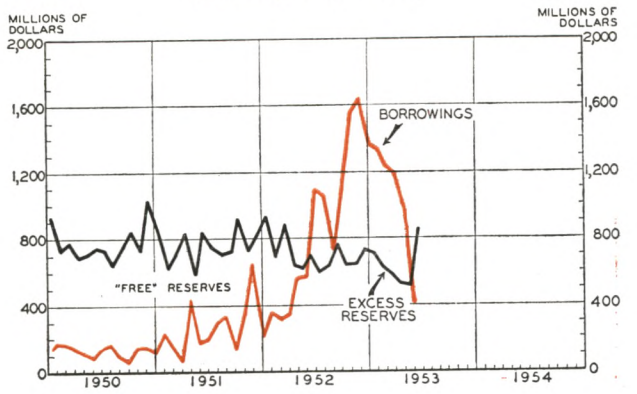
These savings through financial institutions appeared to be finding their way almost exclusively into private and state and local government financing channels. Savings invested through pension funds, and direct purchases of savings bonds by individuals, as well as the acquisition of U. S. Government securities for foreign accounts, were important sources of funds for the Treasury.

Private Money Supply Declines The necessity for current private savings to provide the funds to finance the net investment expenditures of the economy was imposed by the decline, partly seasonal in nature, in the privately owned money supply. In May, adjusted demand deposits at weekly reporting banks throughout the country averaged about 4 percent less than in December 1952, and only 1 percent above the year-ago level. This shrinkage, although largely seasonal in nature, was somewhat sharper than in the early months of last year, and the year-to-year gain of 1 percent in such deposits is small compared to the expansion of output and income in the same interval.

With business loans declining less than is considered seasonal in the first half of the year, and with consumer and real estate loans rising substantially and U. S. Government deposits declining considerably until late June (despite the bulge of tax receipts in March) the shrinkage in adjusted demand deposits is ascribed to the sharp reduction in bank investments in U. S. Government securities until June. In the first five months of 1953, bank holdings of U. S. Government securities are estimated to have declined about $5 billion. In the comparable period of last year they showed practically no net change. The shrinkage reduced bank investments in Governments to the lowest level in a decade. The shrinkage this year was chiefly in Treasury bills, but holdings of bonds also declined. The reduction in bank portfolios of Governments, exceeding the volume of securities redeemed by the Treasury, imposed an additional burden on the absorbent powers of the current savings of the economy.

Federal Reserve Policy The key to the unwillingness of the banking system to supply fully the heavy demands for credit from all sectors of the economy lay in the tight reserve position of member banks. The seasonal return of currency from circulation in January was to a large extent offset by the resale of short-term securities to dealers by the Federal Reserve Banks. In the first quarter, approximately $600 million of reserves were absorbed by a gold outflow. The gold outflow slowed down considerably during the second quarter, with net earnings by foreign countries being invested in U. S. Government securities. With short-term business loan requirements less ur-

EXCESS RESERVES AND BORROWINGS
All Member Banks
(monthly, 1950 - 1953)



. . . excess reserves of member banks declined still further during the first half of 1953, and until June were consistently smaller than their borrowings.

NOTE: Figures plotted are daily averages for each month except June, 1953 which are daily averages for the period June 4 to June 24, partially estimated.

gent than in the late months of last year, Federal Reserve discounts and advances to member banks declined somewhat from the high level reached in December; nevertheless the average level of borrowings from the Federal Reserve in the first half of 1953 was about the same as in the last half of 1952. Increases in the Federal Reserve Banks' discount rates in January served to provide an additional deterrent to bank borrowing at the Reserve Banks.

Federal Reserve holdings of short-term Governments showed practically no net change from February to mid-May, and for the first five months of the year as a whole the net decline in the System portfolio was about $600 million, compared with a reduction of $1,400 million in the comparable period of 1952. Throughout the first half of the year, open market operations of the System were conducted solely in short-term Governments, and were not related specifically to Treasury financing operations. Temporary accommodation was frequently extended to security dealers, however, in the interest of maintaining a smoothly functioning money market.

The net effect of changes in the sources and uses of reserve funds during the first five months of the year was to reduce member bank reserves by about $1 billion, with the result that they were frequently below the year-ago volume, despite the fact that member bank borrowings were consistently higher than in the comparable 1952 period.

The stringency of bank reserve positions during much of the first half of the year is indicated on an accompanying chart. Excess reserves declined sharply to long-time lows, and were preserved only by virtue of heavy borrowing. In effect, for almost a year until June, member banks as a group had no "free" reserves—that is, reserves which are not contingent upon their borrowings from the Federal Reserve System.

Since banks traditionally attempt to keep free from debt, the strong incentive for them to reduce their holdings of Governments is clearly visible. When their holdings of Governments, generally considered as relatively risk-free assets, are reduced, their liquidity position suffers. Consequently, increased inducement is required for them to extend credit. In turn, many banks have raised the interest rates offered on savings in order to attract a greater volume of savings with which to extend credit.

The greater selectivity required of the banking system in extending credit, due to the tightness of its reserve position, coupled with the continued heavy current and prospective demands for credit from all sectors on the economy, resulted in rising interest rates during the first five months of this year despite a large volume of private savings.

Reserve Position Eased in June

In June, reserve positions of banks eased somewhat as a result of Federal Reserve purchases of Treasury bills for the purpose of providing reserves to meet the anticipated seasonal and secular monetary needs of the economy. In addition, temporary funds were provided by System purchases of short-term securities to finance the Treasury during the quarterly tax payment period. These purchases, which lifted Federal Reserve holdings of Governments to a temporary all-time high of more than $25 billion, provided banks with "free" reserves. The rise in yields on U. S. Government securities was reversed, at least for the time being, although yields on corporate and municipal bonds continued to rise.

Also in June, reductions in reserve requirements of member banks were announced by the Federal Reserve System, to become effective early in July. Reserve requirements of central reserve city banks were reduced by 2 percentage points and those of reserve city and country banks were lowered by 1 percentage point. This action was estimated to provide member banks with more than $1 billion of additional excess reserves which would improve their liquidity position, and enable them to reduce their indebtedness to the Federal Reserve Banks or to expand their loans and investments.

Management and Capital in Agriculture

MODERN equipment and human intellect are becoming increasingly the sources of gains in agricultural efficiency and in farm welfare.

Four basic resources or factors of production enter into the economics of agriculture and of individual farms. They are land, labor, capital and management. Of these, the boost in farm output in the United States since the advent of World War II must be credited primarily to capital (as evidenced in the accompanying chart) and to management ability. Similarly the fulfilling of future demands upon agriculture, as well as the answer to many chronic low-income problems within agriculture, will likely evolve from greater and more efficient use of capital goods, associated with significant improvements in the farmer's skill in blending resources in proper proportions.

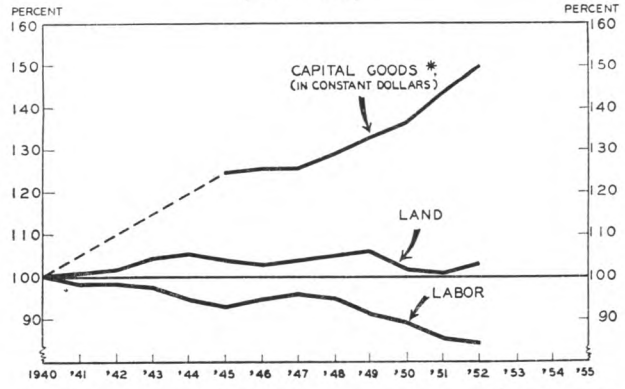
Land and Labor

The physical acreage of land on which tillage is economical is now considered to be rather rigidly fixed in this country. The individual operator frequently acquires additional land from other farmers to achieve the most profitable balance with his other resources, but this cannot often be *new* or virgin land. Land brought into use for the first time through irrigation or the clearing of woodland is very costly; in fact, such acreage nowadays is nearly offset by land being abandoned because per-unit costs of production are too high to be profitable. To increase farm acreage and output by expanding submarginal usage at higher costs is neither economically desirable for the farmer nor for the food and fiber-consuming public.

Nor is additional labor the key to long-run gains in production or fundamental improvement in the financial well-being of agriculture. Historically an oversupply and under-employment of labor on farms has been a basic problem most difficult to correct. Labor as a factor of production has in the past been utilized too heavily for the most profitable combination of resources, just as agriculture's share of the national income has been divided among so many persons that average levels of living have been kept down.

Against such a historical background, the sharp decline in farm employment (shown in the chart) during the past twelve years or more has generally been considered to be in the best interests of agriculture and the nation. For the visible future, a trend toward a still smaller numerical farm labor force is likely to continue, at least until the farm population at the bottom of the income scale finds it profitable to stay on the farm at times when industrial jobs are still plentiful.

PHYSICAL QUANTITIES OF THREE FARM PRODUCTION RESOURCES
(1940=100)



. . . during the past decade farm management has increasingly turned to use of machinery, chemicals, and other capital goods; correspondingly, a smaller labor force has been occupied in cultivating a relatively fixed supply of land.

* Producers' goods valued at 1940 prices. Includes farm inventory of machinery and motor vehicles, and other fixed capital, plus a year's supply of fertilizer, lime, electricity, insecticides, baling wire, etc. 1941-44 not available.

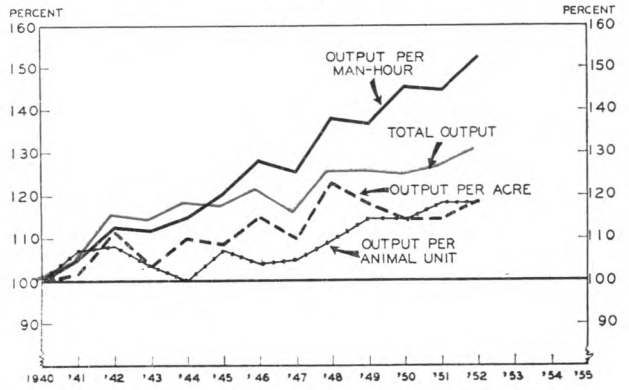
Source: Derived from Bureau of Agricultural Economics data.

Capital and Management

With a relatively fixed acreage of land and an already abundant labor supply, the future requirements for additional farm output to supply a growing population will impinge directly upon the two remaining and related factors of capital and management. Ways and means must be made available to farmers to promote the profitable development of these factors. Facilities for research and education, and provision of sound agricultural credit, will be called upon.

Managerial and labor functions are traditionally intermingled in farming. Nevertheless, effective management here as elsewhere requires highly developed mental qualities of decision making. Among the important decisions to be made relating to the degree of use and apportionment of each factor of production are the following: when and how much machinery to buy in substitution for labor; whether to buy more land or to farm more intensely on existing acreage; what and how much to produce, and when to market; whether to spray weeds or cultivate them out; whether to secure high-producing breeding stock at a high price or medium-producing stock at a lower price; whether to construct simple but adequate buildings at a low cost, or more expensive buildings; whether to invest more money in tiling, or alternately to invest in lime, grass seed and livestock to improve the soil structure and lessen the need for tiling.

INDICATORS OF FARM PRODUCTION EFFICIENCY AND MANAGEMENT (1940=100)



. . . more production per unit of labor, more bushels per acre of land, more meat, milk, and eggs per animal, and a greater total output of food and fiber have been the consequence of improved management and more capital.

Source: Derived from Bureau of Agricultural Economics data.

Although few if any exact statistical devices are available to measure directly the quality of farm management, it is conceivable that wrong decisions are costing farmers millions of dollars in *net* income annually. Management ability, for all its apparent improvement (as suggested by the chart) still represents the most significant limiting factor in the technological progress of agriculture.

Cost and Efficiency Studies

The evidence afforded by available case studies indicates the favorable effects of high-quality management decisions on net farm returns. Such instances generally involve judicious use of additional capital. On dairy farms, for example, one man may handle the milking operation for 50 or more high-producing cows, in contrast to the less favorable situation where two men care for far fewer cows with a lower average production. The decision involved here is not necessarily one of the size of capital investment alone, but rather one of best use of capital in terms of the most efficient types of equipment and their arrangement.

For another instance drawn from dairying, an Ohio Agricultural Experiment Station study indicates that a cow producing 10,000 pounds per year can be kept and milked at only 10 percent more cost than one producing 7,000 pounds or 30 percent less milk. At the same time Ohio State University data indicate that it takes well over 7,000 pounds of milk per cow per year to cover costs if a moderate hourly wage is allowed for the operator's labor. Yet the average production per cow in Ohio is less than 6,000 pounds; even on the improved herds it averages far below the 10,000-pound level which some experts claim should be a minimum.

A study of specialized dairy farms in southern Michigan has shown that per-unit costs of milk production could be cut in half and labor returns doubled by improved management practices and relatively small increases in capital use. The additional capital needed for cows with a higher inherent productive capacity, in conjunction with labor-saving devices and a balanced feeding program, pays for itself if adequate management ability is also developed.

Opportunities for increased profits are not limited to dairying but exist throughout the entire farm scene. In poultry for instance, Cornell University studies among others indicate that it costs nearly as much to feed a very low-producing hen as one in full production, yet vigorous culling of flocks is far from a universal practice.

Similarly, there are recommended poultry-farming practices of warming the drinking water during winter months and providing electric lights for stretching out the hen's "workday." Cost studies show that small efforts or expenditures of this type will boost egg production by 10 to 20 percent. Yet the use of such techniques is still limited to the more efficient farms.

Comparisons of flock sizes, both of layers and broilers, also reveal a typical size of operation per man far below that recognized and proved in practice as most efficient. Additional total capital is needed for a larger operation, although on a decreasing scale for each additional dollar of profit realized. Here again the quality of management must be commensurate with the increased scale of operation.

In hog production the most efficient farmer can show a profit when 1 cwt. of pork will buy perhaps 8 or 10 bushels of corn; others lose money at a ratio of 1 to 12. Effective use of complete and accurate farm accounts will reveal fairly definite "break-even" points on the individual farm and suggest ways of lowering them. This applies not only to hogs as suggested by the hog-corn ratio, but in one way or another to all livestock and crop enterprises. The most successful managers have these points in mind when making their decisions.

How Much Machinery?

In the substitution of capital for labor some farmers have shown weakness in management by going too far in their investment in machinery. Educators in the farm management field have presented facts to show that too much machinery can inflict as great a penalty on efficiency and net income as can too little. According to figures from Iowa State College a tractor would ordinarily be a profitable investment if used about 500 hours per year; a total of 1,000 hours of use are necessary for a second tractor to pay its way.

Data prepared by the Ohio State University show

that costs per hour of use for a $2,000 tractor are cut from $3.00 to $1.00 as use increases from 50 hours to 200 hours, and that the cost drops to nearly 50 cents per hour as the annual hours of use rise from 200 to 400 hours. A comparably priced combine costs $6 per hour if used only 50 hours, but less than $4 per hour for 100 hours, and the cost approaches $2 per hour as use reaches 250 hours. Similar economies are clearly defined for all items of farm machinery.

Such studies not only show the advantage of scale, but they also warn that an individual farmer will not only lower his net income, but can place himself in a precarious financial position by an unwise power and machinery program in either extreme.

The Lender's Role Bankers and other major lenders will have a vital function in agriculture (and consequently in assuring an adequate food supply) in the years ahead just as the countless billions of dollars in credit which they have placed in farmers' hands over the past decade have helped in forestalling hunger and boosting farm prosperity. Their role, however, is far more than simply providing money. The progressive lender rates good management as a prerequisite to loan approval; he helps and advises in improving this factor and in forestalling unwise or unnecessary expenditures. He recognizes that credit is not the full answer to all financial problems, and that lack of capital is not the only weakness of low-efficiency farms.

Announcements

In April of this year Mr. Ray M. Gidney resigned the presidency of the Federal Reserve Bank of Cleveland in order to accept the post of Comptroller of the Currency of the United States.

Subsequently the following appointments were made by the Board of Directors of the Federal Reserve Bank of Cleveland and approved by the Board of Governors of the Federal Reserve System.

As of May 14

President: ..... WILBUR D. FULTON
(formerly First Vice President)

First Vice President: ..... DONALD S. THOMPSON
(formerly Vice President in charge of Research)

As of June 11

Director of Research: ..... MERLE HOSTETLER
(formerly Assistant Vice President)

Chemistry Puts New Life in Agriculture

By CLYDE WILLIAMS, *Director, Battelle Memorial Institute*

In the last twenty years, the production of agricultural chemicals (exclusive of fertilizer) has risen from 50 thousand tons to over 600 thousand tons. During the same period, the consumption of fertilizer has increased from 5 million tons to 22 million tons.

Such striking increases indicate that an old concept for improving the nation's agricultural productivity is receiving new life. That concept, becoming popularly known as "chemical agriculture", consists of putting greater emphasis on the science of soil fertility and plant protection. Over the next hundred years, the increasing application of the concept to farming technology may well exert as great an influence over agricultural output as the mechanization of farms has done during the past century.

The possibilities for the growth of "chemical agriculture" are tremendous. More than one billion acres of land are used for crop production in the United States. Only one-fourth of this acreage, however, is treated with fertilizer and one-eighth with pesticides. Fertilizer and pesticides might be applied economically to a large part of the untreated acreage. The results could be astounding. Insects, weeds, fungi, and other agricultural pests, for example, cause annual damages estimated at $13 billion. This is about 40 per cent of the value of total farm output in 1951.

The benefits from intensifying the "chemical agriculture" campaign are within our grasp, thanks primarily to the remarkable advances of the chemical industry in developing specific chemical compounds to do specific jobs. Chemists are now concentrating on "building" organic compounds that promote plant growth or kill certain types of harmful insects, fungi, and weeds, without being harmful to humans, animals, or to desirable plant growth and development.

The celebrated insect killer, DDT, is still being used in large quantities, but other compounds are forging to the forefront. Methoxychlor is less toxic than DDT to warm-blooded animals. Benzene hexachloride (BHC) is being found more effective for killing the boll weevil which for many years has plagued cotton crops. Because house flies build up considerable resistance to DDT, other apparently more suitable chemical derivatives, with a chlorinated hydrocarbon base, are being developed and marketed.

Within the past two years, more than 20 brands of soil conditioners for promoting better soil structure have been placed on the market. Also available are systemic insecticides that penetrate the plant system and provide built-in protection against attack from certain types of insects. Synthetic sow's milk for feeding baby pigs is growing in acceptance.

One company recently developed a chemical compound known as CDAA (α-cyano-β-(2, 4-dichlorophenyl) acrylic acid). Studies have shown that this compound, applied at low concentrations, inhibits the growth of the main stem of tomato plants and delays the flowering of ornamental plants, without visible injury to other parts of the plants. CDAA joins a growing family of plant-growth regulators that may possibly hold the key for protecting budding plants against frost. Plant-growth regulators are already being used to prevent fruit drop before harvest time and the undesirable growth of potatoes and nursery stock during storage or shipment.

A recent report by a leading trade journal cites the increasing use of defoliant chemicals for cotton as one of the major developments in southern agriculture today. "These chemicals, by causing plants to drop their leaves before picking time, speed up the hand picking of cotton as much as 100 per cent. Without defoliants, the widespread use of mechanical cotton pickers in the south would be virtually impossible."

The same report describes the vastly increased use of 2,4 -D and 2,4,5 -T for the destruction of mesquite, a spiny, deep-rooted shrub that chokes out wanted vegetation on the cattle-grazing lands of the west. In years past, everything from fires to bulldozers has been used against mesquite with little success. During one recent year, however, 2,4 -D and 2,4,5 -T wiped out more than half a million acres of this stubborn pest. These and other related herbicidal sprays do many other jobs, including the killing of harmful weeds in small grain crops and sugar cane, and the destruction of unwanted vegetation around homes, industrial sites, parking lots, railroad beds, waterways, and irrigation ditches.

Present successes in the development of tailor-made agricultural chemicals suggest the possibilities of compounding new and improved ones. To cite a few examples, chemicals are needed (1) to enable plants to absorb considerably more of the sun's energy than the present 4 per cent; (2) to regulate the loss of moisture from foliage and thus cut down damages from drought; (3) to improve the nutritional quality of foods, in addition to simply increasing bulk yields; (4) to force soybeans and other crops to mature all fruits at the same time, thereby facilitating mechanical harvesting; and (5) to impart new qualities to plants such as stiff stems, deep roots, and a high percentage of usable parts.

The nation's population is increasing annually at the rate of 2 million persons. At the same time, usable acreage and the farm labor force are decreasing. A pressing need, therefore, exists for improving the quantity and quality of our agricultural output from presently worked units of land. Perhaps the greatest single opportunity for meeting this need is through an intensification of "chemical agriculture". The investment in research and time needed to bring chemical agriculture to maturity will be considerable. But there is every indication that huge dividends will accrue to the American economy from this investment in more efficient use of our existing agricultural resources.

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.

FINANCIAL AND TRADE STATISTICS

Fourth Federal Reserve District

Time Deposits at 54 Banks in 12 Fourth District Cities

City and Number of Banks	Time Deposits June 24, 1953	Average Weekly Change During June 1953	May 1953	June 1952
Cleveland (4)	$ 955,637,000H	+$2,060,000	+$1,044,000	+$1,296,000
Pittsburgh (9)	544,122,000H	+ 1,171,000	+ 1,402,000	— 233,000
Cincinnati (7)	179,139,000	— 367,000	— 290,000	— 142,000
Toledo (4)	124,450,000H	+ 117,000	+ 182,000	+ 208,000
Akron (3)	111,358,000H	+ 242,000	+ 257,000	+ 33,000
Columbus (3)	95,535,000	— 36,000	— 54,000	+ 9,000
Youngstown (3)	72,158,000H	+ 75,000	+ 93,000	— 5,000
Dayton (3)	54,495,000H	+ 104,000	+ 75,000	+ 79,000
Canton (5)	47,877,000H	+ 108,000	+ 95,000	+ 23,000
Erie (3)	45,889,000H	+ 2,000	+ 9,000	+ 42,000
Wheeling (5)	26,789,000	+ 42,000	— 19,000	+ 4,000
Lexington (5)	14,491,000H	+ 29,000	+ 25,000	+ 40,000
TOTAL—12 Cities	$2,271,940,000H	+$3,547,000	+$2,819,000	+$1,354,000

H—Denotes new all-time high.

The expansion in time deposits at reporting banks in 12 Fourth District cities continued at a rapid pace during June, with a new all-time high of $2,271,940,000 being established on June 24. This represented a gain of 5% over the year-ago level.

The average rate of increase in time deposits, $3,547,000 per week, was faster than in May, as is usual, and was substantially above the rate of increase for June last year, when savings may have been adversely affected by the steel shutdown.

Increases in savings were registered in nearly all the cities, with gains generally exceeding the year-ago volume. At **Cleveland, Akron** and **Dayton,** the net inflow of savings during June was at a faster rate than in the corresponding month for at least six years. At **Pittsburgh, Toledo** and **Youngstown,** the June increase this year fell short of the comparable 1951 figure.

At **Cincinnati** and **Columbus,** where time deposits usually decline in June, the average weekly rates of shrinkage, $367,000 and $36,000 respectively, were about average for the month.

Adjusted Weekly Index of Department Store Sales*

Fourth District

(Weeks ending on dates shown. 1947-49=100)

1952	1953	1952	1953
Jan. 5.....111	Jan. 3.....123	July 5.....115	July 4.....
12.....122	10.....113	12.....107	11.....
19.....121	17.....119	19.....104	18.....
26.....115	24.....123	26.....105	25.....
	31.....113		
Feb. 2.....115		Aug. 2.....109	Aug. 1.....
9.....114	Feb. 7.....124	9.....109	8.....
16.....111	14.....114	16.....112	15.....
23.....107	21.....109	23.....112	22.....
	28.....119	30.....112	29.....
Mar. 1.....105			
8.....101	Mar. 7.....110	Sept. 6.....107	Sept. 5.....
15.....103	14.....115	13.....106	12.....
22.....104	21.....119	20.....105	19.....
29.....103	28.....111	27.....106	26.....
Apr. 5.....103	Apr. 4.....111	Oct. 4.....108	Oct. 3.....
12.....101	11.....104	11.....122	10.....
19.....105	18.....108	18.....119	17.....
26.....112	25.....108	25.....119	24.....
			31.....
May 3.....107	May 2.....106	Nov. 1.....110	
10.....102	9.....111	8.....102	Nov. 7.....
17.....101	16.....109	15.....111	14.....
24.....102	23.....109	22.....113	21.....
31.....109	30.....108	29.....126	28.....
June 7.....105	June 6.....116	Dec. 6.....115	Dec. 5.....
14.....114	13.....111	13.....122	12.....
21.....110	20.....120	20.....117	19.....
28.....113	27.....117	27.....112	26.....

*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* in 31 Fourth District Cities May 1953

(In thousands of dollars)

No. of Reporting Banks		May 1953	% Change from Year Ago	3 Months Ended May 1953	% Change From Year Ago
171	ALL 31 CENTERS	$9,879,327	+ 6.3%	$31,095,201	+10.0%
	10 LARGEST CENTERS:				
5	Akron, Ohio	$ 385,767	+18.8%	$ 1,162,904H	+18.2%
5	Canton, Ohio	151,931	+10.8	477,695H	+14.6
10	Cincinnati, Ohio	1,254,123	+18.0	3,876,428H	+17.7
9	Cleveland, Ohio	2,600,001	+11.8	8,219,152	+14.6
7	Columbus, Ohio	714,148	+11.4	2,195,695H	+15.4
4	Dayton, Ohio	330,096	+12.3	1,037,144H	+13.2
6	Toledo, Ohio	519,990	+17.4	1,555,973H	+16.6
4	Youngstown, Ohio	189,179	+ 3.0	593,333	+ 3.5
5	Erie, Pa.	124,523	+ 3.3	377,317H	+ 7.7
40	Pittsburgh, Pa.	2,740,066	— 7.8	8,948,269	— 0.3
95	TOTAL	$9,009,824	+ 6.0%	$28,443,910H	+ 9.8%
	21 OTHER CENTERS:				
9	Covington-Newport, Ky.	$ 51,981	+15.0%	$ 154,164H	+15.5%
7	Lexington, Ky.	67,374	+ 7.5	210,736	+ 9.1
3	Elyria, Ohio	29,742	+ 4.7	92,807H	+13.5
3	Hamilton, Ohio	55,853	+ 8.5	180,892H	+19.5
2	Lima, Ohio	67,409	+10.0	196,552H	+10.4
5	Lorain, Ohio	23,997	+20.6	73,235H	+27.6
3	Mansfield, Ohio	67,049	+18.9	201,933	+20.1
2	Middletown, Ohio	51,935	— 4.4	165,762	+ 1.0
3	Portsmouth, Ohio	29,312	+21.1	89,168H	+24.0
3	Springfield, Ohio	61,834	— 3.4	188,207	+ 6.6
4	Steubenville, Ohio	28,883	+16.5	86,645	+16.5
2	Warren, Ohio	61,512	+21.8	181,798H	+16.4
3	Zanesville, Ohio	33,480	+ 8.0	101,476H	+11.1
3	Butler, Pa.	43,381	+15.7	132,533H	+16.1
1	Franklin, Pa.	7,419	— 8.4	23,134	— 0.7
2	Greensburg, Pa.	26,329	+11.1	79,895	+11.1
4	Kittanning, Pa.	10,805	— 0.9	33,706	+ 8.4
3	Meadville, Pa.	16,341	+ 1.5	50,085	+ 7.0
3	Oil City, Pa.	23,515H	+21.8	67,343H	+15.7
5	Sharon, Pa.	36,938	+13.7	109,213	+15.4
6	Wheeling, W. Va.	74,414	+10.9	232,007	+14.0
76	TOTAL	$ 869,503	+10.1%	$ 2,651,291	+13.1%

*—Debits to demand deposits of individuals, partnerships, corporations, states, and political subdivisions only.

H—Denotes all-time high.

Debits to demand deposit accounts (except U. S. Government and interbank accounts) at reporting banks in 31 Fourth District centers in May totaled $9,879,327,000. This represented a slight decline from the April volume. After adjustment for number of trading days, however, the average daily volume of debits in May was practically the same as in April, as is usually the case. Compared with the year-ago figure, total May debits showed a gain of 6.3%. On a daily average basis, the year-to-year gain was approximately 10%, the same as in the previous month.

Total debits for the past three months combined exceeded $31 billion, and were 10% above the comparable 1952 volume, the widest margin of gain in more than twelve months.

TEN LARGEST CENTERS

Almost all of the ten largest centers reported a higher volume of debits than in May of last year, although, as usual, debits were somewhat lower than in April.

Year-to-year gains exceeded 10% in a majority of these centers, with **Akron, Cincinnati** and **Toledo** showing the widest gains, between 17 and 19%. These three cities also showed the sharpest gains in debits for the past three months combined.

At **Youngstown** and **Erie,** on the other hand, debits exceeded the year-ago figure by only 3%, and at **Pittsburgh** a decline of nearly 8% was reported.

TWENTY-ONE SMALLER CENTERS

Debit volume at the smaller centers as a group continued to run further above the year-ago figure than at the large centers, registering a gain of 10.1% over the May 1952 volume. For the past three months combined, debits at the smaller centers showed a year-to-year gain of 13.1%, the widest margin in almost two years.

May debits at several of the smaller cities, including **Lorain, Portsmouth, Warren** and **Oil City,** exceeded the year-ago volume by more than 20%, but nearly half the cities reported gains of less than 10%, or showed moderate declines from the comparable 1952 figure.

Indexes of Department Store Sales and Stocks

	1947-49 Average Daily Sales=100 Adjusted for Seasonal Variation			Without Seasonal Adjustment		
	May 1953	April 1953	May 1952	May 1953	April 1953	May 1952
SALES:						
Akron	109	98	109	110	95	110
Canton	115	99	109	120	100	113
Cincinnati	113	108	101	116	105	103
Cleveland	112	101	103	113	100	104
Columbus	118	113	109	116	108	106
Erie	138	121	122	133	120	119
Pittsburgh	105	97	98	106	96	99
Portsmouth	139	126	105	136	118	103
Springfield	98	90	100	99	85	100
Toledo	113	107	104	111	106	102
Wheeling	114	101	106	116	101	108
Youngstown	133	117	106	133	119	106
Fourth District	113	105	103	115	103	105
STOCKS:						
Fourth District	117	115	109	119	121	111

SUMMARY OF NATIONAL BUSINESS CONDITIONS

Released by the Board of Governors of the Federal Reserve System

Industrial production continued in May and June at a level slightly below the March high. Construction activity remained close to earlier record levels, with private nonresidential building activity showing further gains. Sales at department stores and other retail outlets were maintained at advanced levels. Consumer prices rose slightly in May. In June prices of steel and petroleum were raised, while prices of farm products declined.

Industrial production

The Board's industrial production index in May was 241 per cent of the 1935-39 average, unchanged from April and 2 points below March. The index is also estimated at 241 in June.

A slight decline in durable goods production in May reflected mainly some further curtailment in household goods production, a substantial reduction in truck output and a temporary sharp cut in passenger auto assembly in the last half of the month. There was also some further decline in production of building materials. Activity in most industrial equipment and military equipment lines was maintained at the advanced first quarter level. Aluminum production continued in record volume. Steel production in May was at rated capacity but in June has declined somewhat. Auto assemblies have recovered in June to about earlier high levels, while truck production has continued at reduced rates. Television output has been further curtailed as stocks have continued to rise.

Output of nondurable goods was again in record volume in May. Textile production expanded, with output of wool cloth showing a substantial gain, and chemicals production increased further. Activity in paper and rubber products industries was maintained at advanced rates. Meat production in June has continued substantially above a year-ago.

Mineral fuels production rose in May and early June as crude petroleum output turned up and coal mining increased further from earlier reduced levels. Iron ore mining continued at advanced levels.

Construction

Value of construction contract awards declined somewhat in May, but continued larger than a year earlier for the fifth consecutive month. The number of housing units started declined contra-seasonally to 107,000. This compares with 110,000 both in the preceding month and in the corresponding month a year ago. Value of nonresidential construction put in place increased somewhat in May, after allowance for seasonal factors, reflecting further gains in construction for private business purposes.

Employment

Seasonally adjusted employment in nonagricultural establishments was at a new record of 49.2 million in May, slightly above the high levels of other recent months. At factories, the average workweek was reduced slightly further to 40.6 hours, and average hourly earnings continued unchanged at $1.75. Unemployment declined further in May and at 1.3 million was a postwar low for the month.

Distribution

Seasonally adjusted sales at department stores in the first three weeks of June continued near the advanced May level. Automotive sales in May were little changed from the high levels of other recent months, and apparel sales strengthened again following some slackening in April. Stocks at department stores are estimated to have increased slightly further in May after allowance for seasonal variation.

Commodity prices

Steel prices were raised about 4 per cent in June following conclusion of a wage agreement; prices of steel scrap firmed somewhat; and lead increased further. Crude petroleum prices were advanced about 10 per cent and gasoline and fuel oil were raised, while prices of most other finished products continued to show little change. Average prices of farm products declined in June as feeder cattle decreased sharply and wheat dropped reflecting in part larger crop prospects.

The consumer price index rose .3 per cent from April to May, reflecting chiefly a small increase in food prices and a continuing advance in rents and services.

Bank credit and reserves

Loans, investments, and deposits at banks in leading cities, which had declined earlier in the year, rose somewhat in the first three weeks of June. Banks increased their holdings of Treasury bills, including the new tax anticipation issue. There was also some expansion in business borrowing associated in part with quarterly income tax payments. Real estate and other loans (largely consumer) increased further.

Bank reserve positions were relatively easy in the first three weeks of June. Prior to the mid-June inflow of tax receipts, the Treasury drew down its balance at the Federal Reserve Banks and sold special certificates to the Federal Reserve. Substantial additional reserves were also supplied by Federal Reserve purchases of Treasury bills.

In anticipation of heavy demands on bank reserves in the near future from the seasonal requirements of the economy and large Treasury financing, the Board announced on June 24 a reduction in reserve requirements on demand deposits of 1 percentage point at reserve city and country banks and 2 percentage points at central reserve city banks. The action becomes effective July 1 for country banks and July 9 for central reserve and reserve city banks.

Security markets

Yields on most Treasury securities reached new highs on June 1 but moved lower during the first three weeks of the month. Market rates on three-month Treasury bills declined sharply to the lowest point this year. Yields on high-grade corporate bonds rose somewhat further. Common stock prices declined to mid-June and subsequently advanced moderately.