FEDERAL RESERVE BANK OF PHILADELPHIA

FEBRUARY 1958

the electronic abacus

third district banking—1957

our growing supply of housing

business review

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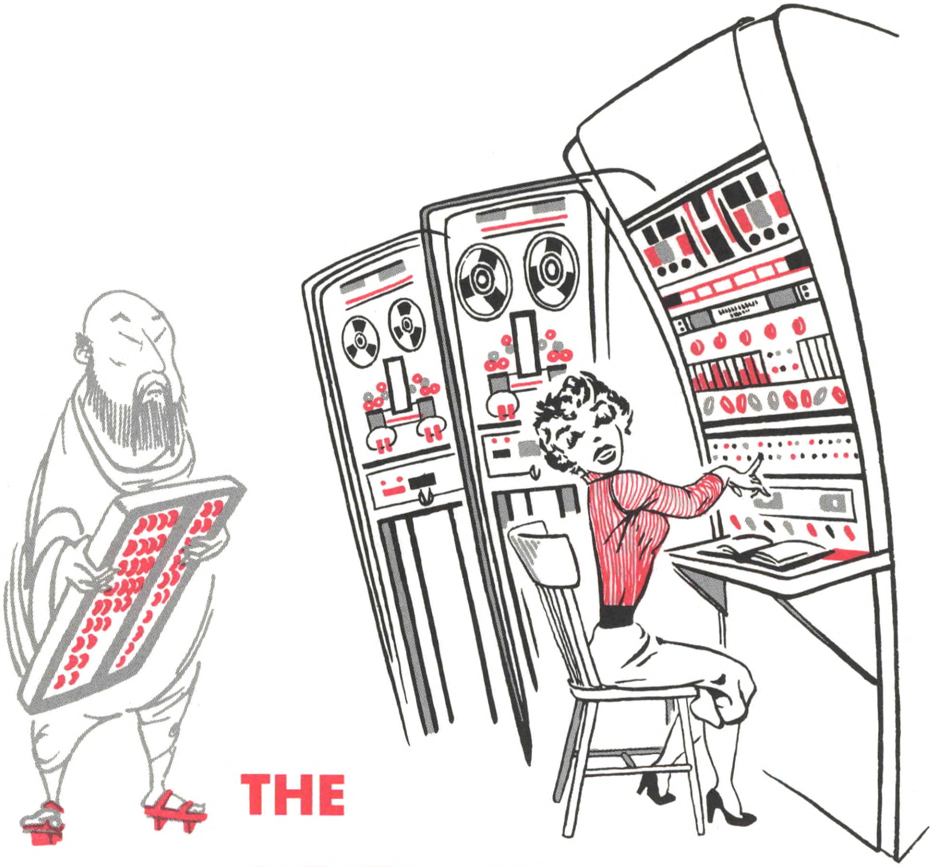


THE ELECTRONIC ABACUS

An electronic computer is what an electronic computer does, and it does some weird and wonderful things.

A computer can forecast the weather or business or the market for wood kitchen cabinets. A computer can trace the fallout of a nuclear explosion, the gyrations of atoms within a molecule, or the path of a man-made satellite around the world. A computer can play a game of chess, fight a jet airplane battle, or sing an opera. A computer can tell where you should locate your new plant, translate the English Bible into Urdu or tell who will be the next President. Moreover, a computer can design a computer smarter than itself!

No wonder these devices are popularly called "Giant Brains" or "Machines That Think." Really they are not intelligent. They are fundamentally stupid. The human brain can really think, but a computer can't. It (and the neuter pronoun is used advisedly because the computer has no sex) must be told precisely what it is supposed to do.

The computer can add but it must be told what to add, when to start adding, when to stop adding, and what to do with the sum. With adequate instructions, the machine can also subtract, multiply, and divide. Whatever it does it does with lightning speed, and that's no exaggeration. Instead of electrically driven gear wheels, as in conventional desk-top computers, the electronic computer does its reckoning by electronic impulses which are as fast as light. A race around the world between an electric impulse and a beam of light would take place in a shade under one-seventh of a second and the beam of light would win by a nose.

Meet the modern computer

An electronic computer is usually referred to in the singular, but actually it is a plural contraption —a family of machines or a "system," as they say in the trade. On first meeting a big up-to-date model in operation, you are impressively awed by the panel board studded with twitching lights, the pervasive system-wide humming, and the multiplicity of supporting units—some resembling big-eyed, square-bodied owls perched hard by and motionless as if concentrating on the problem in process of solution.

The heart of the system is an intricate assembly of electronic gear to do the calculating. Surrounding and supporting equipment consists of separate units to receive information, to store information and instructions, to select and execute instructions, and to tell the answers. That's all there is to it, if you are willing to dispense with the details.

Some people get so enamored with these machines that they place an order before asking the price. Don't do that unless you are well heeled. A big electronic computer system costs $1¼ million or more, or at least $25,000 a month to rent. A medium-sized system costs about $250,000, or about $7,500 a month rent; and a small system costs $100,000 or $1,200 a month rent. Even a small one would be a trifle extravagant for the average citizen to have around to help him on his income tax computation.

ENIAC—the grandpappy

In the middle of 1943, this country was in the middle of a major shooting war. At the Moore School of Electrical Engineering of the University of Pennsylvania, several young engineers put their heads together to improve the art of hitting the target. They hit upon an idea and told it to a farsighted colonel in the ballistic research laboratory at the Aberdeen Proving Grounds. With vigorous support from the colonel, hard thinking of a dozen engineers, and long hours by a crew of telephone men (handy with pliers and copper wires), the team went to work to build a ciphering mechanism.

Thirty months and a half-million dollars later emerged the *E*lectronic *N*umerical *I*ntegrator *a*nd *C*alculator—ENIAC, for short. That was in January 1946. After a year's work at Penn, ENIAC joined the Army and was retired only recently at the advanced age of ten years. During that time, however, ENIAC calculated more mathematical tables than had been calculated previously by all mankind in all recorded history. Incidentally, the same colonel, later a lieutenant general and now retired, also played a prominent role in our satellite program.

How the family has grown!

It is doubtful whether any product has improved so much or any industry has grown so fast as the electronic computer and the industry producing these wonder machines. Though it is only 12 years since ENIAC first went to work, its appearance and performance compared with a current model is a contrast as striking as that of a 1908 Ford compared with a Thunderbird.

ENIAC was big—like a huge stock room full of vacuum tubes, all interconnected with miles and miles of wire. The machine's memory could hold 2,000 words, and the ciphering speed was fast for its day. The modern computer system is ever so much smaller, has a much bigger memory for words, and integral actions take place within 2/1,000,000ths of a second. Electronic engineers are now talking about a new unit of time—the light foot—the time it takes light (going at a rate of 186,000 miles a second) to travel one foot.

The inside of a present-day computer is a science-fiction fairyland to the layman: not many vacuum tubes but transistors resembling three-pronged hairpins equipped with what looks like a tiny storage battery; diodes that faintly resemble elongated light bulbs the size of the middle-most half-inch of a toothpick; magnetic amplifiers that look like toy pop bottle tops. All this and more are mounted on a small plastic plane overlaid with tiny metallic avenues to accommodate a heavy traffic of electric impulses—a packaged circuit the assembly is called, and a computer is loaded with circuitry.

The memory mechanism may be a magnetic drum—about the size of the family garbage pail and made of metal—or it may be a honeycomb-sized and honeycomb-shaped assembly of very fine wires running crisscross and diagonally, the wires beaded with little "bitsy" ferromagnetic cores like doughnuts with a hole. A core is about the size of a pinhead and is made on an aspirin-tablet shaping machine adapted to the purpose. In one plant we saw the early prenatal stage of a computer that will have over a million of these cores and a prodigious memory of 32,000 words.

On going through an electronic computer manufacturing establishment, one gets the impression that it is a misnomer to call it a factory. A factory is a place where identical things are made in great quantity. A computer "factory" is more like a place where people are forever making something to make obsolete the thing they just completed. The people seem bent on working themselves out of a job. A computer is frightfully fast, and it can compute anything except its own rate of obsolescence.

Miracle-machine manufacturers

Rapid change also characterizes the industry that makes computers. There are over a dozen manufacturers of computers, and others on the verge of entering the industry. Manufacturers of big computers include International Business Machines Corporation—better known as IBM and makers of the RAMAC 650, 705, etc.—Remington-Rand Univac, Division of Sperry Rand Corporation (UNIVAC), Burroughs (DATATRON), Minneapolis-Honeywell (DATAmatic), RCA (BIZMAC), and Philco (TRANSAC).

IBM, Burroughs, and Remington-Rand also make medium-sized computers. Others in this field are Monroe Calculating Machine Company (MONROBOT), Marchant Calculators, Inc. (MINIAC), and National Cash Register Company.

In the small computer field are Bendix Computer Corporation, Burroughs, IBM, Royal McBee, and Remington-Rand.

Companies, like computers, come in various sizes and from various places. Philadelphia is a prominent computer manufacturing center. Remington-Rand, Philco, RCA, and Technitrol Engineering Company are the major producers within the Philadelphia metropolitan area. The Burroughs Research Center is also located in the Philadelphia area.

So big

The dimensions of the computer manufacturing industry are somewhat vague. The Bureau of the

Census—one of the first organizations to use an electronic computer—did the best it could in the 1954 Census by considering computers part of the family of "Office and store machines," which includes cash registers, bookkeeping machines, coin and currency handling machines, vest pocket and other simple adding and calculating devices, etc.

The trouble is, it's hard to define an electronic computer. There is no doubt about the big jobs and perhaps little doubt about most of the medium-sized machines, but there is considerable difficulty in determining just which of the great variety of small machines used for reckoning are properly called electronic computers. For example, is a posting machine, which has a memory mechanism, a computer?

The survey previously referred to, which uses perhaps a rather liberal definition of a computer, reported that late last year there were over 5,000 computer systems in use throughout the country. Approximately 200 of these are large computers, about 800 are middle sized, and over 4,000 are small computers.

The business, howsoever defined, is thriving. Estimates of machines on order are: about 300 large systems, 1,500 middle-sized computers, and almost 2,000 small computers. Probably 2,500 or more potential buyers are actively and seriously considering electronic computer installations.

Where computers work

This story is concerned primarily with digital computers—those that count, like an adding machine. A digital computer is in reality an electronic abacus that can be plugged in. Analogue computers are those that go in for solving things like differential equations.

As already indicated, ENIAC spent most of its life in a ballistic research laboratory. A laboratory is the natural habitat for an electronic computer because it is in the laboratory that difficult mathematical problems involving a tremendous amount of computation are most likely to crop up. Therefore the engineers and the mathematicians find the electronic computer a most welcome tool. They frequently encounter problems that would take a good many man-years to solve with the aid of conventional ready reckoners, but such problems can be solved in a few weeks or a few months with an electronic computer.

Electronic computers also go to business. According to another survey made last summer that covered nearly 4,000 business firms throughout the United States and Canada, it was found that 2½ per cent of the firms used electronic computers for office work of various kinds. The survey also revealed that insurance companies and electrical manufacturers tied for first place in business applications of computers. Manufacturers of petroleum products ranked third.

For an insurance company, the computer does premium billing, commission accounting, dividend calculation, and actuarial work. Electric companies find computers useful for centralized financial and property accounting of regional plants. A petroleum refinery can use a computer for scheduling refinery production to get the most profitable end-product mix dependent upon the refinery's characteristics, nature of the crude oil processed and current market prices of the numerous petroleum products.

The most common type of work assigned to computers in business offices is payroll work. Gone are the days when the paymaster had to multiply the hourly rate by the time served by each worker, total the products, and tally the numbers of nickels, dimes, quarters, halves, and assorted denominations of folding money to be obtained from the bank teller to meet the weekly payroll. That simple process was first complicated by piece work and incentive wage-payment plans. Subsequently, those complications have been compounded by a fast-growing family of deductions: federal tax, city tax, retirement, charitable donations, check-offs, savings bonds, hospitalization, social security, etc.—so that the small remainder, called "take home" bears only a faint resemblance to the original point of attack, euphoniously called emolument. All this dirty work the electronic computer dispatches in a hurry and without bias and without tears.

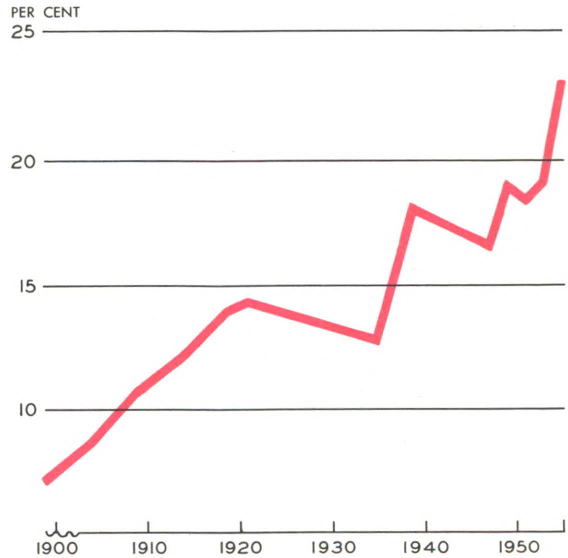
The survey just referred to showed also that about one-third of electronic data-processing in business was payroll work. Twenty to 25 per cent of the firms used electronic computers for such things as expense accounting, securities accounting, property accounting, general accounting, dividend computation, inventory control, and engineering computations.

The great paper fallout

In view of the ever-growing volume of paper work that constantly threatens to inundate executive desks, it is no wonder that management is all excited about electronic computers. Over the years there has been a steadily rising paper fallout accompanying the production of a ton of goods, whether it be copper wire, cotton cloth, or rubber tires. This is reflected in the changing proportions of blue-collar workers in the shop and white-collar workers in the office in all manufacturing industry.

In 1899 only 7.2 per cent of all factory employees in American manufacturing industry were people engaged in clerical and supervisory activities, in contrast with 92.8 per cent "production workers"—the term used by the Census to designate what are commonly called factory or shop operatives. In 1955, white-collar people represented 23 per cent of all workers in manufacturing industries, as shown in the accompanying chart.

PERCENTAGE OF NON-PRODUCTION WORKERS IN MANUFACTURING INDUSTRIES OF THE UNITED STATES



Source: Census of Manufacturers

The amount of paper work varies, of course, from one industry to another. Among converters in the cotton textile industry it is alleged that for every yard of fabric a converter handles, he must handle 10 to 20 yards of paper, consisting of invoices, credit memos, stock-production records, interoffice memos, and all manner of business forms. By no means can all of the increased amount of paper work be blamed on the need for Government reports; much of the increase arises from the growing size of business enterprise, the development of multi-plant industrial organization, the geographical distribution of assembly plants and branch offices, the growth of scientific and economic research, the rise of unionism, the expansion of multiple stock ownership, etc. Whatever the causes, management is forever struggling with big batches of paper piling up on the desk, calling for action, decision, or review. Consequently, management looks hopefully to the electronic computer as an assistant in fighting the furious fallout of paper.

To market, to market, to buy a computer

THINK is the slogan and the title of a publication of one of the leading electronic computer manufacturers. *To think* is precisely what any business organization contemplating the purchase of a computer should do. It should think long and hard, and then think some more. Upon completion of the thinking, the whole process should be rethought once more. Top management may be badly deceived if it believes that the use of a computer will relieve it of the burden of decision making. On the contrary, the decision to get or not to get a computer requires more thinking than management ever did before.

To begin with, a general-purpose digital computer is a device designed for high-speed handling of complicated problems. To be sure, many large business concerns frequently face highly complicated problems which are meat for an electronic computer, but it is easy to make the mistake of confusing an exceedingly complex problem with an endless train of easy but annoying problems. That sounds simple and elementary, and it is; but some business concerns have made the mistake of getting a computer only to find later that they have comparatively little work that requires a computer, so it is put to work on jobs that less costly equipment can perform more economically.

Computers are revolutionary

A computer is not a simple machine like a cash register or a coin counter that is simply *added on* to the existing equipment and system of operation. No, a computer system is not just added on to an established office arrangement of equipment and procedures, but *replaces* the status quo. The installation of a computer system is inevitably accompanied by a revolution. As a matter of fact, it creates two revolutions—one in the firm's established systems and procedures, and an earlier revolution in the heads of top management.

Howsoever the work in a large business office is accomplished (before computer installation), the management in charge is likely to believe that it is good or efficient. It may or may not be. But whether good or bad, the installation of an electronic data-processing system inevitably requires thoroughgoing reorganization. You don't just install a computer with the general command, "Run this place more efficiently, please." Remember, although a computer can read, reckon, and write at a speed comparable to writing or reading a "Gone With the Wind" in 15 minutes, it is only a tool, the usefulness of which depends on the skill with which it is used. Before the computer can start earning its keep, there is a gigantic job of analysis and harnessing to do. Reverting to the lingo of electronic data processing, there is a job of *programming* to do.

Programming is rough

"You must take a bath in it when you start programming," said an official of a department store experimenting with the use of a computer. The reason programming is so difficult is that the computer manufacturer knows computers but he does not know the business of the prospective customer; the customer knows his own business but he doesn't understand computers.

Electronic hardware is fascinating, but programming is frustrating. Programming might be defined for the layman as setting up the machine system to do the work you want it to do for you. Let's take a simple illustration, or what looks like a simple illustration.

Suppose you are running a large department store which is systematized, of course, but you are dissatisfied with the length of time it takes to get reports of accomplishments, namely, sales. By the time management gets the information as to how well a department is doing, the season is almost past. Furthermore, with all the record-keeping and files full of multiple copies, management has the feeling that the store is employing entirely too many non-productive workers engaged in paper work for each dollar of sales that stays put.

You want to have up-to-the-minute information on how well major appliances are selling by manufacturer, type, style, color, capacity, type of customer, method of payment, etc., etc. The programming has now begun; but only just begun. You have indicated all that you want to know. Probably the various questions to be answered fall into several more or less homogeneous families of questions. So it becomes necessary to make a major diagram—a sort of flow sheet, arranging major families of questions into a somewhat logical sequence. Then blow-ups have to be made of the principal parts of the major diagram or flow sheet, after which come the blow-ups of the blow-ups. By the time all this is finished, the walls of the office are plastered with what looks like a detailed diagram of the street pattern of New York City!

Then comes the tedious job of translating what has been laid out in the English language into the language that the electronic computer can understand, because these machines have a language of their own. Never having done this, we shall not attempt to describe it other than to say it is really something! Then comes the inescapable work of *de-bugging*. De-bugging might be defined as trouble shooting applied to programming. That job may take days or weeks, depending upon how many bugs have to be shot.

Upon attainment of final results, comes the job of auditing. If the electronic computer reports that last week the store sold $56,000 worth of 6-foot cubic capacity white Frigidaire 23-A 649B3 models for cash to Philadelphia metropolitan area, middle-income families with more than four but not more than nine children each, you naturally will want to know whether this is really true. Consequently, there is checking to do. To be sure, it can be checked electronically, but nevertheless it must be checked. And remember, the auditing also requires programming.

Once the programming is complete and accurate, the high-speed computer will spout reams of information. And if you don't watch out, you'll be buried in more paper work than you ever were before, because an electronic computer really has leverage.

To combat the problem of paper fallout it may be decided to do accounting by exception; that is, instructing the computer to print only those situations that deviate from the normal. Accounting by the exception brings to the attention of management only those things calling for decision and action.

What! No electronic computer?

After perhaps a year's analysis of the applicability of a computer, accompanied by an expenditure of a lot of hard thinking and considerable money, management will be or should be ready to make the decision whether or not to recommend to a hard-boiled board of directors the acquisition of a computer. Even if the decision is not to engage a computer, the very process involved in arriving at that decision is bound to be profitable because of the numerous system improvements uncovered by the decision-making process. In fact, many people believe that the savings attributed to the computer are really the result of system change uncovered by the methods study demanded by the installation of a computer.

One of the worst mistakes that can be made is to get a computer simply because the process of investigation has already caused the investment of considerable money and innumerable man-hours or man-years of time. A more serious mistake is to get a computer because a competitor has ordered one. Perhaps a computer does have prestige value, but it is expensive unless the machines are used properly.

Computer service

As already indicated, a potential computer client need not buy a computer system; it may be rented. Better still, leading computer manufacturers also maintain service bureaus in the principal cities throughout the country so that a prospective client can buy a computer service which may serve as a trial run. Furthermore, not all computers in existence are captive computers; that is, privately owned systems. For example, the University of Pennsylvania has a computer with time available for the occasional problems of computer magnitude that arise in the Delaware Valley area. The Franklin Institute in Philadelphia also has a computer, and it is working a double shift.

Electronic banking

A check may have quite a career between the time it is issued in payment of a bill and the time that it and other checks are returned together with the bank's statement of the account at the end of the month. Few people realize that the great bulk of all business transactions involving the payment of money are done by check rather than by cash. It may not even seem particularly impressive when told that the American banking system handles 10 billion checks each year; but that entails a tremendous amount of clerical work, and of course banks do things other than push checks around.

In view of the tremendous amount of data processing performed by the commercial banks of the country, banking would seem to be a natural field for the electronic computer. Some banks are using and others are planning to use computers on volume clerical operations. For the most part, banks that are using this equipment are satisfied with the results.

Generally, however, the banks using electronic equipment must transcribe the basic information from a document onto a standard medium, usually a punched card, before the data can be introduced into the electronic computer system. In the process of creating another form to take the place of the original document, such as a check, troublesome problems are likely to result.

These difficulties may be reduced or perhaps eliminated when magnetic-ink characters are placed on the check and on other items processed by the clerical force within the bank. The items will be their own carriers of information to an electronic system and may result in more electronic banking.

General-purpose electronic computers with their ability to perform rapid calculation may not be the most advantageous for use within a commercial bank. The problems of bank accounting and record keeping are not complicated calculating processes but, rather, problems of arranging and storing data and elementary arithmetic.

Job-holding computers

Operating electronic computers are holding down some strange jobs. Computers are very helpful in determining which bids to accept in a complex situation, computers are useful to aircraft companies in designing and ground flying of new forms of aircraft yet to be built; to shipbuilders in designing and testing the hulls of vessels; to utilities that have a monumental job of billing customers; to air lines for processing reservations; to manufacturing concerns that have 40,000 or 50,000-item inventory control problems, and computers have been used in a "war games" approach to executive training. In the last-named, teams of executives compete in a hypothetical business by making decisions as to prices, production levels, etc., for the coming quarter. Then at the end of the quarter, balance sheets and income statements are calculated on a computer. Thus, years of training are compressed into a few hours.

Can the computer lasso the business cycle?

So great are the accomplishments of the electronic computer that one is tempted to believe there is almost nothing it can't do. Then why not assign it the job of taming the business cycle which has hitherto defied all efforts at domestication!

All business transactions, wherever they occur, could be fed into local input units, housed in metropolitan and village postoffices. All the data could flow over our communications wire network to a centralized electronic computer located at, say, Crestline, Ohio. There all business data would be subjected to electronic data processing. The output unit of the comprehensive computer would indicate and execute the necessary adjustments in commodity prices, wages, and interest rates to maintain the economy on a even keel—a sort of economic Sperry Gyroscope! If an airplane can be kept in stable flight by an automatic pilot, why not equip our national economy with an automatic stabilizer? Visibility is always low.

THIRD DISTRICT BANKING—1957

Growth in the deposits and loans of member banks in the Third Federal Reserve District slackened materially in 1957. The earnings picture was quite similar to that reported last summer, when information for the first half-year was available. Reflecting in part higher money rates and bond yields, total earnings pushed upward to a marked degree. But the increase over 1956 in current expense was greater in percentage and not far short in dollar terms. Income tax payments and other adjustments also increased somewhat, with the result that net profits available for distribution were little larger than in 1956.

Preliminary tabulations show that deposits in the aggregate increased only $51 million during 1957 to $8,618 million, after mergers are taken into account. A decline at reserve city banks, located in Philadelphia, was accompanied by continued expansion at other member banks. Classified by type, the figures reveal further growth in time deposits but a decline in those payable on demand. The expansion of $91 million in loans to $4,209 million was only about one-third as much as in 1956. The largest increases were in instalment loans to individuals for personal expenditures and in real estate loans, with the increase in business loans a rather poor third. Investments show a small increase in total, despite some decline in holdings of Federal Government securities.

The increase in loans from year-end to year-end was only 2 per cent, but the average level of loans in 1957 was about 5 per cent above 1956. Rates of return also were higher, with the result that income on loans increased 10 per cent and accounted for nearly three-fourths of the rise in total earnings of Third District member banks, which moved up $29 million to $359 million in 1957.

While gross earnings have been rising from year to year, the same held true of current expenses. Increases in time balances and the upward thrust in rates paid have been pushing interest on deposits more and more into the limelight as an element of expense. The increase from 1956 to 1957 was over $11 million or approximately one-third. Salaries and wages also increased materially and other expense items were on the upslant. In total, expenses rose nearly $25 million to $230 million.

As a result of these developments, net current earnings—the amount remaining after payment of current expenses—came to $129 million, less than $4 million above 1956. This increase in turn was cut into by somewhat heavier taxes on income and net losses and transfers to valuation reserves. For the year as a whole, the preliminary figures show net profits of $57 million available for distribution, less than one-half million dollars more than in 1956. Cash dividends increased and absorbed two-thirds of the net profits.

The dollar aggregates discussed in preceding paragraphs are useful measures of over-all trends in the banking world of this District. To facilitate analyses of operating experience by individual banks, this Bank prepares each year a circular setting forth average operating ratios of banks classified by size and by the proportion of time to total deposits. Each member bank receives a copy of this circular and a transcript of its own ratios. The circular usually is mailed late in February.

MEMBER BANKS Third Fed. Res. District (Dollar amounts in millions)	Dec. 31, 1957*	Change in year** Amount	Per cent
Loans:			
Business	$1,703	+$ 20	+ 1%
Security	126	— 24	—16
Real estate	1,145	+ 36	+ 3
To banks	4	+ 1	+42
To individuals for personal expenditures—			
Instalment	809	+ 51	+ 7
Single-payment	372	+ 10	+ 3
All other	151	+ 12	+ 8
Total	$4,310	+$106	+ 3%
Less reserves	101	+ 15	+17
Net	$4,209	+$ 91	+ 2%
U.S. Gov't securities	2,341	— 30	— 1
Other securities	833	+ 46	+ 6
Deposits, total	8,618	+ 51	+ 1
Capital accounts	874	+ 21	+ 2
Earnings, expenses, and profits	Year 1957*		
Earnings:			
On securities	$ 78.0	+$ 4.3	+ 6%
On loans	227.3	+ 21.3	+10
All other	54.0	+ 3.1	+ 6
Total earnings	$359.3	+$28.7	+ 9%
Current expenses:			
Salaries and wages	$102.7	+$ 7.6	+ 8%
Interest on deposits	44.6	+ 11.4	+34
All other	83.0	+ 5.9	+ 8
Total expenses	$230.3	+$24.9	+12%
Net current earnings	$129.0	+$ 3.8	+ 3%
Net losses and transfers to reserves	$ 34.3	+$ 1.3	+ 4%
Taxes on income	37.8	+ 2.1	+ 6
Net profits	$ 56.9	+$ 0.4	+ 1%
Cash dividends declared	37.0	+ 2.8	+ 8

*Preliminary tabulations.
**Adjusted for mergers, etc.

OUR GROWING SUPPLY OF HOUSING

The country's supply of dwelling units was expanding at a fast pace very early in the current decade, according to preliminary results of the 1956 National Housing Inventory taken by the Bureau of the Census. To be sure, a post-war upward trend was to have been expected, considering the drastic limitations on new residential construction over the years of World War II. However, the magnitude of the recent increase in our housing inventory and the wide variations among major metropolitan areas seem especially worthy of note.

Over a period of six and three-quarter years ended December 1956, net growth in our supply of dwelling units was considerably greater than had ever been shown between any successive ten-year censuses. This reflected primarily the large number of additions resulting from new construction. Over much of the 1940 decade the increase in our housing inventory depended more heavily on residential conversion and the creation of living quarters from existing nonresidential space.

Back in April 1950 the nation had just under 46 million dwelling units. By December 1956 the inventory had grown to almost 55.4 million. The increase of 9.4 million units compared with a net gain of 8.7 million in the decade of the 1940's. On an annual basis, the rate of increase rose to approximately 1,390,000 from 870,000 between 1940 and 1950.

Country-wide, the greatest proportionate rise in our housing inventory after April 1950 occurred inside what the Bureau of the Census calls standard metropolitan areas. These areas, comprising the nation's larger cities, also include part or all of one or more adjacent counties. In such metropolitan areas the net increase in number of dwelling units was 23.4 per cent, compared with a 16.5 per cent gain elsewhere. Although at the start of the latest census period, standard metropolitan areas held over one-half of the nation's supply, these areas accounted for almost two-thirds of the inventory increase noted in the succeeding six and three-quarter years.

The table on the following page shows the wide variations in inventory growth that developed among some of the larger metropolitan areas covered in the latest census tabulation.

Inventory growth from 1950 to 1956 was far above the national average in Los Angeles and in the two southern metropolitan areas of Atlanta and Dallas. This development seems to suggest, among other things, that people still are "following the sun" in their selection of living sites. Detroit stands out as the principal area outside the warmer climates experiencing a larger-than-proportionate increase in number of dwelling units in this period. Here, it is quite possible that two exceptionally good years for the automobile industry—1950 and 1955—may have contributed measurably to a more rapid growth in housing inventory.

In metropolitan Philadelphia, which includes four adjacent counties in Pennsylvania and the three directly across the Delaware River in New Jersey, the net increase in dwelling units was very nearly in line with the average gain for all our larger geographic units. And of the three older Atlantic seaboard areas, Philadelphia showed the largest proportionate increase. New York was a not-too-close second and Boston experienced the smallest inventory growth of any standard metropolitan area for which data presently are available.

The City of Philadelphia alone did not share proportionately in the increase shown for the metropolitan area. Here, the housing inventory as of December 31, 1956 was only 6.9 per cent above the level of April 1, 1950, compared with the metropolitan area gain of 21.4 per cent. However, it must be remembered that from the beginning of the current decade a very pronounced shift to suburban living quarters has been underway in Philadelphia, as in some other large cities across the country. Consequently, this disparity is neither surprising nor peculiar to Philadelphia. Chicago was another of our largest cities that failed to keep pace with the housing inventory growth in its metropolitan area. And it's quite possible that similar disparities occurred in some degree in other cities not yet shown separately in census findings.

The average annual increase in number of dwelling units over the past six and three-quarter years was far higher than in the 1940-1950 decade in almost all of our larger metropolitan areas. On this basis, only Seattle on the west coast experienced a smaller increase than in that earlier period. The housing inventory gain was most outstanding in Atlanta, where the annual rate was more than double that reported in the 1940 decade. In the Philadelphia and New York metropolitan areas, the annual increase was 89 per cent greater from 1950 to 1956 than in the preceding 10 years. This compared with a 57 per cent increase for all metropolitan areas in the United States.

Housing Inventories Standard Metropolitan Areas	Number of Units December 31, 1956	Net Increase Since April 1, 1950 Number	 Per cent
United States	31,620,000	6,000,000	23.4
Philadelphia	1,277,800	225,200	21.4
New York	4,631,000	677,000	17.1
Boston	736,000	69,000	10.4
Chicago	1,930,000	280,000	16.9
Detroit	1,084,000	226,000	26.3
Atlanta	275,000	76,000	38.5
Dallas	258,000	61,000	31.0
Los Angeles	2,131,000	609,000	40.1
Seattle	297,000	45,000	17.8

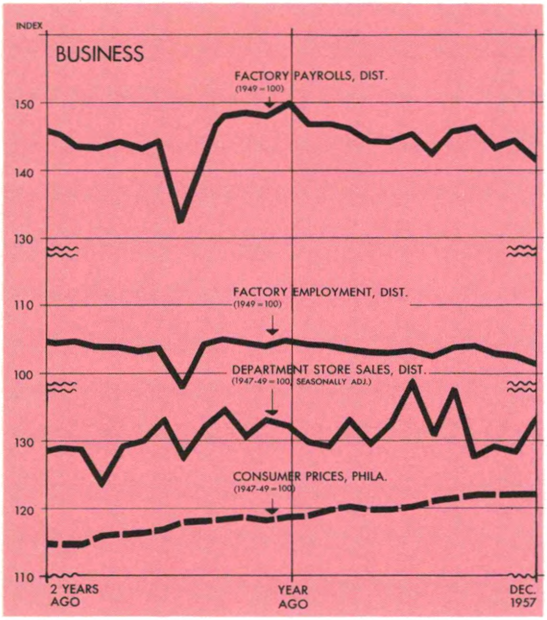
Source: Bureau of the Census

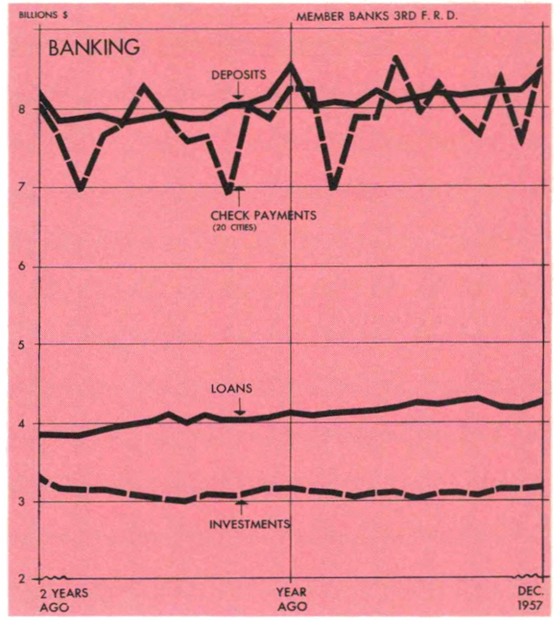
business review

FEDERAL RESERVE BANK OF PHILADELPHIA

TABLE OF CONTENTS—1957

FOR THE RECORD...





Revised Series for Department Store Sales

SUMMARY

	Third Federal Reserve District: Per cent change, December 1957 from mo. ago	December 1957 from year ago	12 mos. 1957 from year ago	United States: Per cent change, December 1957 from mo. ago	December 1957 from year ago	12 mos. 1957 from year ago
OUTPUT						
Manufacturing production	− 2	− 8	−3	− 6	− 8	0
Coal mining	− 9	−20	−6	− 9	−12	−3
EMPLOYMENT AND INCOME						
Factory employment (Total)	− 1	− 3	0	− 1	− 5	−1
Factory wage income	− 2	− 6	+1	...	...	...
TRADE*						
Department store sales	+ 4	+ 1	+1	+ 4	+ 1	+1
Department store stocks	− 3	+ 2	...	− 3	− 1	...
BANKING (All member banks)						
Deposits	+ 3	+ 2	+3	+ 3	+ 2	+2
Loans	+ 2	+ 3	+5	+ 1	+ 3	+6
Investments	+ 1	0	0	+ 2	+ 1	−2
U.S. Govt. securities	+ 1	− 1	0	+ 2	− 1	−3
Other	+ 1	+ 5	0	+ 2	+ 9	+2
Check payments	+13†	+ 4†	+4†	+16	+ 9	+7
PRICES						
Wholesale	...	...	...	0	+ 2	+3
Consumer	0‡	+ 3‡	+3‡	0	+ 3	+3

*Adjusted for seasonal variation. †20 Cities ‡Philadelphia

LOCAL CHANGES

	Factory* Employment: Per cent change December 1957 from mo. ago	year ago	Factory* Payrolls: Per cent change December 1957 from mo. ago	year ago	Department Store Sales: Per cent change December 1957 from mo. ago	year ago	Department Store Stocks: Per cent change December 1957 from mo. ago	year ago	Check Payments: Per cent change December 1957 from mo. ago	year ago
Lehigh Valley	−1	−3	−2	− 9	...	...	...	...	+11	+10
Harrisburg	−1	−6	−5	−12	...	...	...	...	+10	+ 4
Lancaster	−2	−2	−4	− 2	+41	0	−24	+ 6	+ 8	− 2
Philadelphia	−1	−3	−1	− 2	+32	+1	−23	+ 5	+12	+ 4
Reading	0	−3	−5	− 5	+39	0	−25	+ 1	+16	+ 4
Scranton	−1	−6	−2	− 8	+60	+5	−23	+ 2	+13	+ 8
Trenton	−1	−5	−9	− 9	+54	−1	−30	− 3	+15	+ 8
Wilkes-Barre	−1	−2	−3	− 5	+57	−1	−22	− 1	+14	+ 3
Wilmington	+1	0	−3	− 4	+35	+1	−26	− 1	+42	− 7
York	0	−7	−1	− 7	+56	+1	−30	−11	+ 8	+ 9

*Not restricted to corporate limits of cities but covers areas of one or more counties.