FEDERAL RESERVE BANK OF PHILADELPHIA

BUSINESS REVIEW

MARCH 1959

Drugs and Bugs

How Did Banks Make Out in 1958?

DRUGS AND BUGS

On Philadelphia's Spring Garden Street west of Broad there once stood a huge, hoary brick building where Baldwin made locomotives—great, big steam locomotives. On the same spot now stands a tidy, modern structure where Smith, Kline & French makes pills—teeny, tiny pills.

Just around the corner on Broad Street, a mere seven-iron shot north of Spring Garden in a building of the nineties vintage, Philadelphia's famed Sharp & Dohme has been making pills for generations. Merged with Merck in 1953, Merck, Sharp & Dohme now also operates a 300-acre laboratory and pill plantation in the suburbs at West Point.

Wyeth Laboratories — a division of American Home Products—makes pharmaceuticals in Philadelphia, antibiotics in West Chester, biologicals in Marietta (Lancaster County), and the shiny quarters in Radnor house the laboratories and administrative functions of the company reaching as far west as Idaho.

National Drug, which merged with Vick Chemical, has a stand in Philadelphia; McNeil Laboratories recently absorbed by Johnson & Johnson (surgical dressings) has been making drugs in Philadelphia for fourscore years, and in nearby Hammonton, New Jersey, Whitehall Laboratories makes pharmaceuticals in a brand-new plant. It is not intended to create the impression that Philadelphia has a half-nelson on the pharmaceutical industry, but the Quaker City is the focus of an important drug-manufacturing area largely because of the city's longstanding prominence as a center of materia medica.

MATERIA ECONOMICA

Pharmaceuticals are as old as Egypt and as new as nucleonics. The industry is research-rooted and market-minded. Producers are lavish in expenditures on product development and equally lavish in cultivating their markets. It's an industry of small fixed-capital investment but heavy selling expenses. Some companies are large; others small. Some make a full line of drugs; others specialize in a limited line. The industry is split between firms selling products for usage under professional direction and those selling products advertised to consumers.

The industry is highly competitive, handsomely profitable, alert, healthy, vigorous, unseasonal, uncyclical, public-spirited, and wise in public relations. It is subject to Government scrutiny for malpractices, and to investor scrutiny for profitable practices. Companies usually compete with each other like cats and dogs but during emergencies like wars or epidemics, they cooperate like brothers. Moreover, companies compete with themselves. New and more effective drugs are forever pushing older products off the production lines and off druggists' shelves. By ceaseless striving to put itself out of business, the industry puts itself more firmly into business.

A big little industry

By latest count, the pharmaceutical industry consists of 1,163 concerns that employ 77,000 people who work up $482 million of raw materials into $1,643 million of pills, capsules, ampules, liquids, salves, ointments, hormones, vaccines, antibiotics, and other finished products. Few if any other industries have as great a spread, percentage-wise, between raw-material costs and value of products shipped. In other words, the industry makes a lot out of a little.

How the industry stacks up for size depends upon what it is compared with in the American family of almost 500 manufacturing industries. Alongside the big ones, it is little; alongside the little ones, it is big. Why not dispense with the confusion of numbers and just call pharmaceuticals a big little industry?

Who's who?

Drug manufacturing concerns fall into two classes—the ethical and the proprietary (no unethical implications). The ethical houses make products which are used under professional directions and the purchase of these drugs may require both money and a doctor's prescription. Money alone buys the products of the proprietary concerns. Ethical drugs are things like antibiotics, sulfonamides, vaccines—high-voltage stuff for the killer diseases. Proprietary drugs are low-voltage concoctions like aspirin products, cold remedies, and laxatives.

Proprietary drugs are often but erroneously called "patent" medicines. To get a patent in this country, you must come up with something new and original. In the realm of medicine, it is usually the ethical houses that develop new drugs and get them patented. Thus, patent medicines are seldom patented medicine.

Among the most widely known ethical manufacturers are Abbott Laboratories; American Home Products; Lederle; Lilly; Merck, Sharp & Dohme; Parke, Davis; Pfizer; Schering; Searle; Smith, Kline & French; and Upjohn. Some of the leading firms in the proprietary field are Bristol-Myers; Mead Johnson; Norwich Pharmacal; Plough; Sterling; Vick; and Warner-Lambert. Ethicals have been growing fast and now account for almost three-quarters of the total pharmaceutical sales.

The trouble with the twofold division, just explained, is that it is getting fuzzy. Heretofore strictly ethicals are going into proprietaries, and some of the proprietary firms are going into ethicals. Invading each other's preserves is done either by developing new-product lines or by way of consolidation and merger.

A tour through a pill mill

In some respects, a pill mill, or tablet factory for technical accuracy, is like any other factory. In other respects, it isn't. As you might suppose, a pill—like any other product—must be designed, the ingredients are carefully weighed according to the recipe, and shaping takes place on little tablet-punching machines that punch them out at the rate of 2,000 a minute. What a sickly people we must be! After spray coating, comes polishing done on a machine that resembles a concrete mixer. The hissing and the swishing in the pill-polishing department are perhaps the most distinctive sounds the tourist through a pill factory takes with him. Bottling and packaging are high-speed, mechanized operations—the same as in a dairy or a distillery. There is endless checking and inspecting and testing, which is quite understandable, for here is a business where an error cannot be tolerated because it might be fatal.

The machinery, materials, and inhabitants of a pill factory are also what you might expect—huge tanks with interconnecting piping, autoclaves, centrifuges, filter presses, kettledrums full of mentholated mixtures, herbs, carboys, drums, scales and pails, and all kinds of professional paraphernalia like beakers and bottles, Bunsen burners, pipettes and petri dishes aplenty, and professional people wearing long white coats, and some also wearing masks to scare away the deadly bugs they are playing with.

You get the feeling you are going through a laboratory—and as a matter of fact you are. A shop of this kind is essentially a laboratory, with a production department attached to make the laboratory self-supporting. It is significant that the word "laboratories" appears in the title of a number of leading manufacturers of ethical drugs. With or without the word—and note the plural—no respectable pharmaceutical house is without them. In many lines of business it is fashionable to have laboratories, but in this business, laboratories are indispensable.

It isn't exactly unusual to find a library attached to a business organization, but in a pharmaceutical house you find a library where the librarian seldom languishes in loneliness. Magazines by the hundreds and books by the thousands, mostly highly technical stuff and in all languages—and believe it or not, people reading them.

The mouse and monkey department

In their native habitat, mice are mice, and monkeys are monkeys—but in a pill mill, both are guinea pigs. So are chicks, cats, dogs, rabbits, and an occasional horse, cow, or bull. Mice and monkeys seem to be the favorite guinea pigs, judged by the number kept on hand to try out new drugs. Breeding pharmaceutical mice is a special business engaged in by several firms along the Atlantic Seaboard.

The monkey business is different. Monkeys come from Burma, India, Malaya, Pakistan, Thailand, and the Philippines. They are flown into this country on regularly scheduled cargo planes and by charter flights. Immigrant monkeys are now arriving in this country at an annual rate of about 225,000 animals. The average cost of a monkey is about $50, and they are used not only by the major drug companies but also by re-

search foundations, biological laboratories, medical schools, Federal agencies such as the National Institute of Health, the armed services, the Atomic Energy Commission, etc.

MICROCOSMIC COMPETITION

For all our scientific fuss
Research is still a blunderbuss,
We fire a monstrous charge of shot
And sometimes hit, but mostly not!

—"The Skills of the Economist," *by Kenneth E. Boulding (Howard Allen, Inc., publishers, Cleveland 6, Ohio)*

George Washington was often exposed to enemy fire, but what finally killed him was not a bullet but a bug. During his final illness the doctors urged him to dring a sickening mixture of molasses, vinegar, and butter, but he couldn't take it. Then he was made to eat a menthol vapor rub. The doctors drained a pint of blood and wrapped around his throat a flannel cloth soaked in menthol vapor rub. They bathed his feet in warm water, applied a blister of Spanish flies to his throat, bled him another pint, made him gargle with sage tea and vinegar, and bled him again.

As the General got worse, he was given a heavier bleeding—a full quart—and was given a laxative of calomel and an emetic of tartar. A young physician who advised slitting the General's windpipe below the point of mucous obstruction, to assist breathing (today's tracheotomy operation), was overruled; instead, blisters of wheat bran were applied to the General's feet. Then the General died.

In the light of today's knowledge, Washington's terminal illness would probably be diagnosed as streptococcic laryngitis. Too bad the doctors didn't have any antibiotics.

Antibiotics come in tiny capsules at 50 cents apiece to the patient. Five to $10 worth usually gets you on your feet, when laid low by a bug of some sort. Precisely what bug bit you is a fact you or your doctor may never know. But this you know and lived to tell—that the antibiotic made you well. And what are antibiotics?

Scientific witchcraft

A sufficiently powerful microscope trained on a drop of water or a speck of soil would reveal more living things and a greater variety than the population of New York City! You would see an unbelievably colorful jungle of wiggling wild life—strange beings waging unremitting warfare with each other for food, water, space, and existence. These microbic organisms, including molds and bacteria, are on the borderline between plants and animals and look like an arboreal nightmare. So tiny that a teaspoonful would number millions of millions, they multiply and fight furiously, and as they grow they become visible like the mold on a piece of stale bread.

Microbes, molds, fungi, bacteria, or just plain bugs to the layman, are not all vicious, as might be imagined. Some microbes are useful, like those employed to make wine, beer, bread, and cheese, through a process called fermentation. These, the helpful microbes—technically known as saprophytes—might be called the "goodies." Then there are the harmful microbes—the parasites — that bring pneumonia, typhoid, smallpox, tuberculosis, etc., that might be called the "badies." It is only within the past few years that we have learned how to use the goodies to fight the badies.

Among chemical substances produced by microbes are two groups of compounds: (1) the growth type, which are stimulating—vitamins—they are the good-will microbes; (2) the growth-inhibiting or antibiotics are the ill-will microbes.

Thus, antibiotics are chemical substances produced by a microorganism, or identical substances produced by chemical synthesis which have the capacity to inhibit the growth of other microorganisms or to destroy them.

Penicillin, the first useful antibiotic, was discovered in England by Alexander Fleming in 1928, who found its ability to eliminate disease-causing bacteria *in vitro*, that is, under test-tube conditions. In 1939-1941, two other Englishmen —Drs. Howard W. Florey and Ernst D. Chain— found a way to use penicillin as an effective destroyer of bacteria *in vivo*, that is, in laboratory animals and in persons. For their discoveries, the three microbe hunters received the Nobel Prize in Medicine and Physiology in 1945.

Prodigious efforts were made during World War II to improve the potency and productivity of penicillin. In 1943, the Department of Agriculture's Peoria laboratory found a penicillin mold which increased the yield to about 100 times that of the original Fleming mold. Further increases in yield were obtained at the Carnegie Institution, where the Peoria mold was bombarded with X rays, and still greater increases in yield were obtained by University of Wisconsin geneticists, who used ultraviolet-ray bombardment.

The first significant product of company-financed research was streptomycin, discovered in 1943 by Dr. Selman A. Waksman and his assistants working at Rutgers University on a grant by Merck & Company which magnanimously gave up its contractual "sole right to develop commercially" any results of this research. Streptomycin was the first drug to attack the tuberculosis germ directly in the body of the victim.

The basic microbial discoveries outside the pharmaceutical industry touched off a stampede of the microcosmic competition in the laboratories throughout the industry—competition in the little world of the microbes. Each company tried to outdo the other in bringing out the most effective bug killer.

Laboratory technicians worked overtime to discover new antibiotics. As fast as they found them, they tried them out on mice and monkeys, and then on man. After getting approval of the Food and Drug Administration as to the purity, safety, and potency of the new antibiotic, and a patent to ward off competitors, the new drug went to market. Competition was fast and furious. New antibiotics appeared in rapid successsion. American Cyanimid's Lederle Laboratories patented Chlorotetracycline in 1949, and the same year Parke, Davis patented Chloramphenicol. Patents were granted in 1950 on Pfizer's Oxytetracycline, and in 1951 on Lilly's Penicillin V, in 1953 on Wyeth's (American Home Products) Benzathine penicillin, and Lilly's Erythromycin, and Pfizer's Tetracycline. All of these and two dozen others that might be mentioned are the broad spectrum antibiotics—drugs effective in fighting a wider range of germs than the original narrow spectrum, penicillin.

For all we know, most of the antibiotics just mentioned may now be obsolete because the competition maintains such a fast pace that one company's product is rapidly superseded by an improved antibiotic from either its own laboratory or that of a competitor. Unlike formerly, when it took about ten years to develop a new drug, which was good for about 15 years, it now takes much less time to bring out a new product, and its life span is likely to be short.

MACROCOSMIC COMPETITION

Competition in the laboratories in the little world of microbes is only half the competition in this

industry. The other half takes place in the wide, wide world of markets. This is macrocosmic competition.

How to get a drug on the market

How a drug gets on the market depends on whether it is a proprietary or an ethical drug. If it is a proprietary, you know very well how it gets on the market—the same way any other product gets there: advertising in the newspapers, magazines, on radio and TV. The gunman who specializes in robbing lone women proprietors of small retail stores is all set to get his fourth victim. Just when the police are about to close in on him, comes the commercial—about somebody's stomach sweetener, illustrated with animated cartoons so dearly beloved by little children. Oftimes the advertising department has just discovered a new ingredient that causes the remedy to rotate clockwise in ever-widening circles throughout the entire abdominal cavity as prima facie proof of its curative power. And only 59¢ at your nearest drugstore.

Most ethical drugs, though bought by the ultimate consumer, require a doctor's prescription, as already mentioned. Consequently, the advertising must be pitched at the doctors, and that calls for a technique quite unlike proprietary pitching. When an ethical house has developed a new drug and is ready to launch it, the manufacturer virtually ignores the market of 175 million potential consumers and directs his efforts on the country's 225,000 physicians. It sounds easy but in reality it is tough because most doctors are very busy people who put in an average work week of better than 60 hours. So the problem is how to catch them in an idle moment to tell them all about a brand-new drug they have never heard about. This may be explained with reference to the advent of tranquilizers.

The hailstorm of "happy pills"

Canst thou not minister to a mind diseas'd,
Pluck from the memory a rooted sorrow,
Raze out the written troubles of the brain,
And with some sweet oblivious antidote
Cleanse the stuff'd bosom of that perilous stuff
Which weighs upon the heart?

—*"Macbeth," Act V, Scene 3.*

More hospital beds are occupied by mental patients than the total of all other types of disability combined. In the past half-dozen years, numerous medical agents have been found which calm the patient and make him more amenable to other types of therapy. The market is flooded with more than 30 different types of tranquilizers, professionally known as ataractic drugs (from the Greek word, ataraxia, meaning freedom from mental disturbance), and popularly known as "I-don't-care pills," "mood pills," "happy pills," etc. In calling all doctors, the discoverers of new pharmaceuticals set up quite a clamor.

One way of calling to the attention of doctors a new drug is the obvious one of advertising in the medical journals, of which there are a great many—journals and advertisements.

Probably more effective is direct mail. Doctors are the recipients of a constant and enormous barrage of direct mail advertising designed to inform them about new drugs as well as to remind them of drugs no longer new. Big drug companies think nothing of spending $500,000 in the first year's promotional mailing on a new product. A widespread practice is to send along with the literature samples of the new drugs, and sometimes also mechanical pens or pencils with which to write the prescriptions, and other gadgets like prescription blanks, rulers, calendars, desk pads, etc.

Then there are sales promotion devices such as motion pictures, closed-circuit television programs, guided tours, lectures and exhibits at medical meetings.

Most important of all are the detail men. Major pharmaceutical houses have squads of detail men who personally call upon physicians to introduce and promote new products and answer questions relating to them. It is the job of the detail man to develop in the physician enough interest in the new product so that he will prescribe it. A detail man may have a territory including 200 doctors, 40 retail drugstores, and 10 hospitals. Estimates of the total number of detail men employed by the pharmaceutical industry range from 10,000 to 12,000. Detailing accounts for the lion's share of promotional expenditures of a large house. Total promotional expenditures for the year in which a new product is launched by a company may run to as much as $2½ million.

Midst the maelstrom of mood drugs, it is apparent that a new drug, regardless of its inherent merits, encounters gigantic competition and needs a mighty big push to get recognition and acceptance. That is one reason why each tranquilizer has a trade name as well as a generic name. If a doctor prescribes by generic name, the druggist may fill the prescription with any of several manufacturers' products he may happen to have on his shelves. But if the M.D. prescribes by the trade name, that's it; and the druggist may not substitute another virtually identical drug without the doctor's permission.

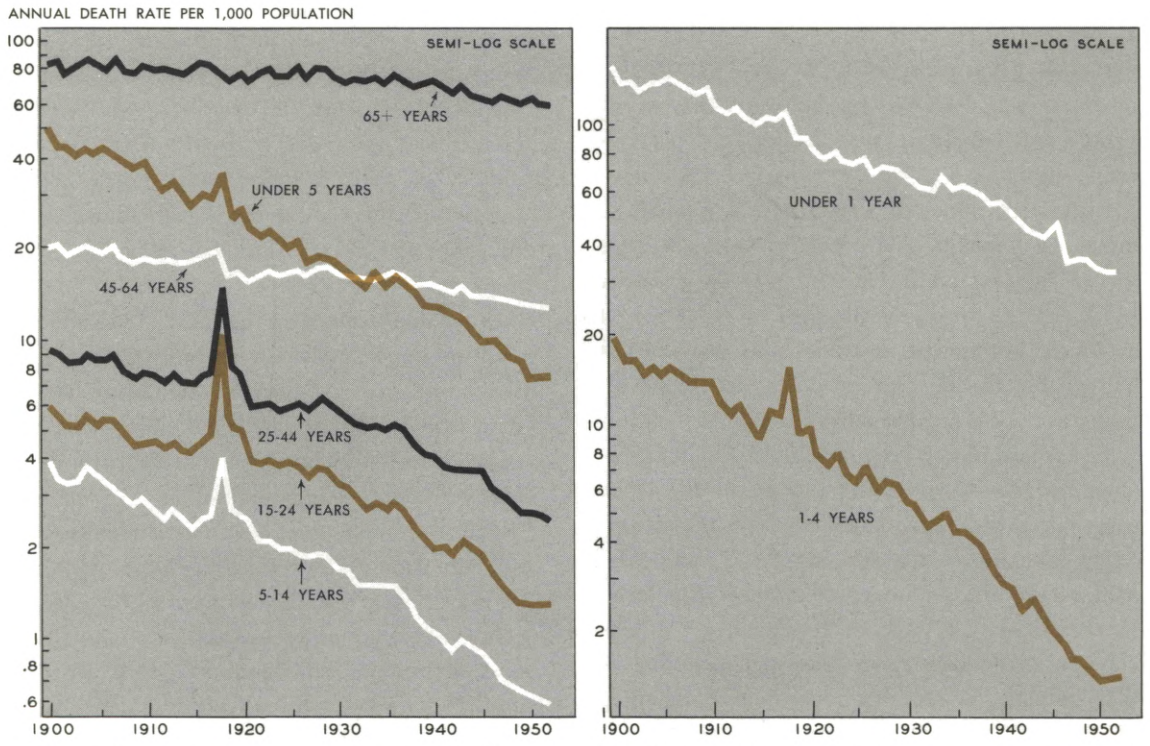
When Miltown caught fire

Miltown is an example of how a small company hit the jackpot. Wallace Laboratories, division of Carter Products (Little Liver Pills), developed a tranquilizer—meprobamate—that calmed down nervous little mice and tamed ferocious rhesus monkeys. After successful trials on man, the company got clearance from the Food and Drug Administration to market the new tranquilizer.

In harmony with the company's New Brunswick laboratory policy of naming experimental products after nearby communities, this drug was called Miltown—adapted from Milltown, dropping one "l." With that most unmedical name, the drug went to market. Initially, it was a slow burner with monthly sales of scarcely $7,500. Sales perked up after an advertising organization was hired to stir up publicity, and after several complimentary articles about it appeared in a learned medical journal. But it really caught fire when the movie colony in Los Angeles began buzzing about tranquilizers in general and Miltown in particular. Unlike most drugs, its name was easily pronounceable and, better still, lent itself to punsters and jokesmiths on TV screens in the homes of millions of people. Example: "Miltown Berle," or "The Government is giving out a Miltown with every income tax blank," or "Use a Miltown instead of an olive to make a 'Miltini.'" Demand for the product exploded like a conflagration, and the company had to struggle mightily to satisfy the market. Annual sales of Miltown and the basic powder shot up to a $25 million peak.

Ever-mounting publicity eventually boomeranged. Doctors became hesitant to write Miltown on their prescriptions, which everybody could understand, and shifted to other tranquilizers with more medical syllabification. Sales of Miltown began to fall off as its own popularity hastened the appearance of a host of competing tranquilizers. When the wisecrackers on screen and radio finally exhausted the bag of jokes about Miltown and shifted their attention to Sputniks which had just appeared in the skies,

TRENDS OF ANNUAL DEATH RATES FROM ALL CAUSES BY AGE GROUPS, 1900-1952



Miltown became just one of many tranquilizers, and something had to be done. Quietly, the company brought out a new tranquilizer named Meprotabs—a restyled Miltown wearing a different coat.

℞ FOR PROFITS

It is no secret that the pharmaceutical industry is profitable. It is one of the most profitable of manufacturing industries. Every year from 1950 through 1957, the manufacturers of drugs and medicines made a larger return on net assets than manufacturing industries generally. How do they do it?

Well, it's a peculiar industry. Illness doesn't ride up and down with the business cycle. Some people are sick most of the time, and most people are sick some of the time, so there is a constant demand for drugs. Moreover, the population is growing in numbers and longevity. Old people consume more drugs than those in the prime of life. Another peculiarity about demand is that the consumer of ethical drugs is utterly helpless about what drug he buys, how much he buys, whose drugs he buys, and how much he pays. When you're sick, you take what the doctor prescribes. In the ultimate analysis, it's the microbes that determine the total demand curve, the doctors determine what company shall profit by your illness, and you pay the bill.

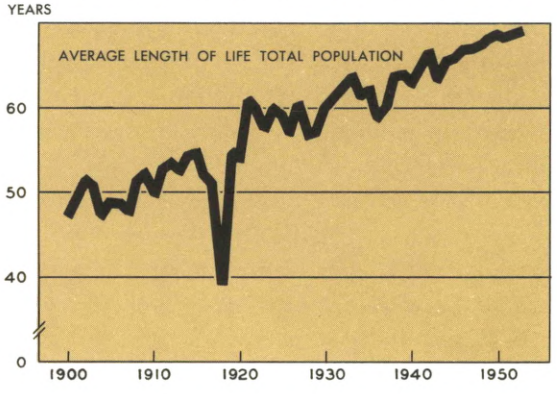
The price of a drug is influenced by its cost of production, the number of companies produc-

ing it, whether or not there is another drug that will do the same job, and the patent situation. The fewer the companies producing a drug, the higher the price is likely to be. A patent is a first-class price prop while it lasts, but in this business it is seldom long before a competitor brings out something just as good or perhaps even better.

Price-wise, some of the strangest bedfellows are to be found in this occult industry. A drug for which one manufacturer charges the druggist $3 a bottle, with a generic label, may be priced at $18 a bottle with a trade label by another house, though the two products are identical. Sweet are the uses of neology!

The record of good earnings in this industry is, of course, based upon the reports of the large companies, but they make most of the drugs. Large companies can make money and small companies can make money, and all of the large companies once were small. It is also easy to lose your shirt in this strange industry, and that is why industry is spending ever-increasing sums of money on research. For example, research expenditures by the industry rose from $127 million in 1957 to $170 million in 1958, and $190 million has been budgeted for 1959. The leading companies spend an average of about 7 per cent of their sales for medical, agricultural, and chemical research. That's a good deal more than most other industries spend.

AVERAGE LENGTH OF LIFE:
DEATH-REGISTRATION STATES, 1900-1953



BARNYARD DRUGS

Have you noticed that animals in the barnyard are friskier than they used to be? It is because they are getting antibiotic supplements in their feed. As a result, calves, pigs, lambs, and beef cattle grow faster; cows give more milk; hens lay more eggs; and broilers produce more meat. Of course all this adds to the farm surplus problem, but it is being done more scientifically.

Animals also need tranquilizers. It shouldn't surprise you that animals on the way to the slaughterhouse get nervous and apprehensive, so much so that they lose weight—which partially defeats the purpose of the trip. By feeding them tranquilizers before they leave home, they face death with equanimity, if not actual joy. At least they don't lose weight.

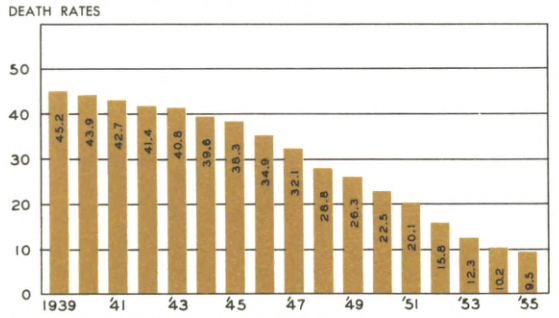
Tranquilizers are also being used to facilitate live capture of wild animals in the forests and denizens of the deep. To get a cardiograph of a whale off the coast of California, the beast was tamed with a harpoon equipped with a tranquilizer warhead. This may mean that in commercial whaling the familiar cry, "Thar she blows!" may become "The Needle, Ahab!"

BUGS BITING THE DUST

Research teams of the pharmaceutical industry,

DECLINE IN TUBERCULOSIS DEATHS

Death rates per 100,000 estimated mid-year population.



Source: National Office of Vital Statistics.

the Government, universities, and independent foundations are striking terror into the little world of hostile microbes. One by one the bad bugs are biting the dust. Meningitis, pneumonia, tuberculosis, and syphilis, and other heretofore fatal scourges of mankind have become casualties of the scientific attack.

Since the introduction of sulfa drugs in 1937, deaths from influenza-pneumonia have declined 75 per cent. The principal diseases of childhood—scarlet fever, streptococcal sore throat, diphtheria, whooping cough, and measles—which caused 10 deaths per 100,000 children in 1945, dropped in the space of 10 years to one death per 100,000, a decline of 90 per cent. According to unpublished data of the National Office of Vital Statistics, the mortality from all infectious diseases dropped in a half-century from 672.2 per 100,000 in 1900 to 44.3 per 100,000 in 1956. The steepest declines in mortality have been in the younger age groups, as shown in the chart. After age 44, the declines have been slow and moderate.

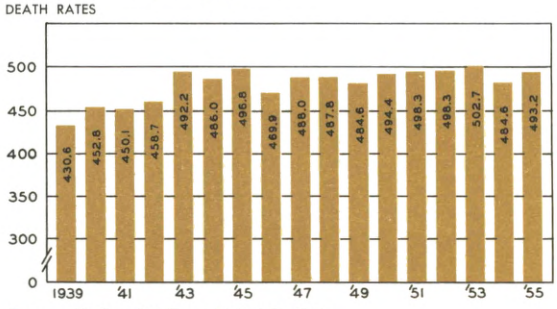
As the age-adjusted death rate goes down, life expectancy goes up. As shown in the single-line chart, the average duration of life for the total population has increased from 47.3 years in 1900 to 68.7 years in 1953. In 1956, the expectation of life at birth increased further to just a shade short of 70 years; however, this may have been pulled down slightly in 1957 by the influenza epidemic in the last quarter of that year. Note in the chart the havoc wrought by the 1918 influenza pandemic.

According to mortality conditions prevailing at the turn of the century, one-fourth of the newborn would fail to reach their 25th birthday. Now less than 5 per cent of the newborn face that dismal destiny.

The sulfa drugs, antibiotics, hormones, and vaccines have not only increased longevity but decreased misery. People recover from illness much faster than formerly. Prior to the advent of these wonder drugs, pneumonia patients who survived had to spend 100 to 110 days in the hospital; but as a result of the sulfa drugs, the pneumonia patient's hospital stay was cut down to about 18 days. Subsequent to the introduction and use of penicillin and the wide spectrum drugs, the pneumonia patient's hospitalization has been cut down still further to about nine days. In each successive advance, the amount of time

INCREASE IN DEATHS FROM DISEASES OF HEART AND CIRCULATION

Death rates per 100,000 estimated mid-year population.



Source: National Office of Vital Statistics.

DEATH RATES FOR THE TEN LEADING CAUSES OF DEATH IN 1900, AND DEATH RATES FOR THESE SAME CAUSES IN 1956*

Rank (1900)	Cause of death (Sixth revision of international lists, 1948)	Rate per 100,000 population	
		1900	1956
1	Influenza and pneumonia	202.2	28.2
2	Tuberculosis, all forms	194.4	8.4
3	Gastro-enteritis	142.7	4.5
4	Diseases of the heart	137.4	360.5**
5	Cerebral hemorrhage and other vascular lesions affecting central nervous system	106.9	106.3
6	Chronic nephritis	81.0	†
7	All accidents	72.3	56.7
8	Cancer and other malignant neoplasms	64.0	147.9
9	Certain diseases of early infancy	62.6	38.6
10	Diphtheria	40.3	0.1
	All causes	1,719.1	935.4

* Some of the progress is accounted for by better diagnosis.
** Part of the cause for the rising incidence of heart diseases is the fact that more people live to attain the age of cardiac trouble.
† Not comparable because of change in classification.

required for Nature to cure the patient has been reduced.

UNFINISHED BUSINESS

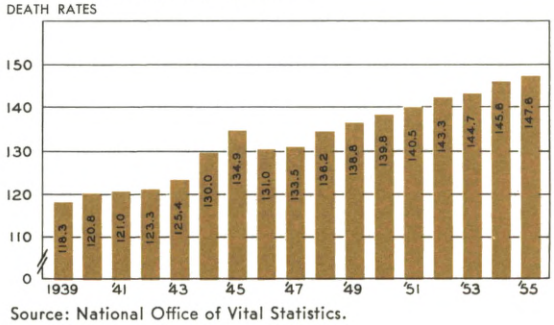
All of us are indebted, and some of us more than we know, to the great pioneering scientists like Pasteur, Fleming, Florey, Waksman, Chain, Salk, and many others who have made epochal breakthroughs in the relentless battle on the bugs. Nevertheless, the job of banishing disease still has a long way to go. The accompanying table summarizes some of our major accomplishments, as well as the unfinished business. Diseases like pneumonia and tuberculosis are no longer taking a frightful toll, and diphtheria is all but conquered.

Diseases of the heart and cancer, as the table shows, are now the major killers. Among the principal causes of morbidity are the common cold, arthritis, rheumatism, and mental diseases (tranquilizers do not cure mental diseases). All these diseases and others are under attack and in time, no doubt, will be conquered. For operable cancer, the cure rate is already better than 30 per cent. It has been predicted that an effective cure for cancer will be obtained by 1965. By 1962, it is expected, we will have developed a heart-disease drug, as well as drugs for mental disease, and an effective vaccine for the common cold.

As this goes to press, comes the announcement that four young British scientists have isolated in pure form the basic substance of penicillin

INCREASE IN CANCER DEATHS

Death rates per 100,000 estimated mid-year population.



Source: National Office of Vital Statistics.

which could lead to countless "tailor-made" penicillin varieties capable of defeating organisms that escape the existing type or have grown resistant to it.

Will the time ever come when all diseases will have been brought under control? When the family doctor will carry in his little black bag a variety of pills or perhaps some kind of an atomic bug bomb that will annihilate any and all bugs that may bite you, when all people not killed by accidental causes or homicide will live to a ripe old age and just fall apart like the "wonderful one hoss shay"? Some virologists tell us that it is bound to come and is closer at hand than we think. Long live the microbe hunters, and more power to their armamentaria!

HOW DID BANKS MAKE OUT IN 1958?

When a banker asks "How is business," he is not likely to be indulging in idle conversation. Trends in production and consumption, in spending and saving, and other economic factors, as well as fiscal activities and actions of the monetary authorities are grist for his mill. These are the materials he uses in appraising current conditions and prospects and their potential effect on the operations of his bank. During 1958 he had to take into account a recession in activity continuing into the spring and a marked recovery in later months.

In the fore part of the year, the Federal Reserve System took several steps to help turn the recessionary tide. It reduced discount rates and reserve requirements, and purchased United States Government securities. Later in 1958, when business was on the upgrade, the Reserve Banks raised their rates.

Third District member banks borrowed much less from the Reserve Bank than in 1957. With easier reserve positions, they sought outlets for available funds. The fact that their earning assets increased $\$1/2$ billion to $7.9 billion shows that outlets were found, but suitable lending opportunities were less frequent than investment opportunities. They added $260 million to their holdings of United States Government securities during 1958, a year when the marketable debt of the Federal Government increased considerably. And they increased holdings of other securities, chiefly obligations of States and local governments, by $110 million.

Approximately $120 million was added to loans, but this was only one-fourth of the expansion in total earning assets. Real estate credit accounted for much of the loan increase, with smaller additions to business and securities loans, and a slight decline in credit extended to individuals for personal expenditures—automobiles, appliances, remodeling, doctors' bills, and the like. Country bank loan portfolios, adjusted for

mergers, increased 6 per cent, while those of reserve city banks were down 1 per cent.

Sharply increased earning assets contributed to an expansion of nearly $1½ billion in deposits of Third District member banks, lifting the total to $9.2 billion. Dollarwise, this was the largest increase on record. Gains, substantial at both reserve city and country banks, were mainly in time balances.

Bankers reported an increase of $14 million to $376 million in total earnings, but their current expenses moved up $18 million. Salary outlays and miscellaneous expenditures continued to rise, but most of the increase in expenses was in interest on time deposits, reflecting higher rates paid and the rising volume of such deposits.

While net earnings from current operations were off somewhat from 1957, profits on securities were much more substantial and transfers to valuation reserves and charged-off losses declined. These changes more than compensated for the decline in net current earnings and heavier income tax payments. As a result, net profits available for distribution moved up from $57 million to $72 million. Relatively little of this increase, due so largely to non-recurring transactions, was carried over to cash dividends, which increased only $2 million to $39 million.

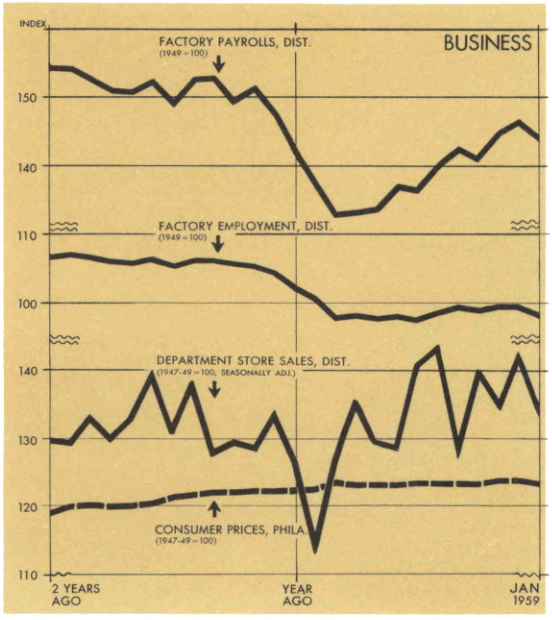
The number of member banks in the Third Federal Reserve District declined from 533 to 513 during 1958. Sixteen member banks merged into or were purchased by other members in the District, two by members in the Fourth District, and two by nonmember banks. District member banks absorbed five nonmembers in the course of the year.

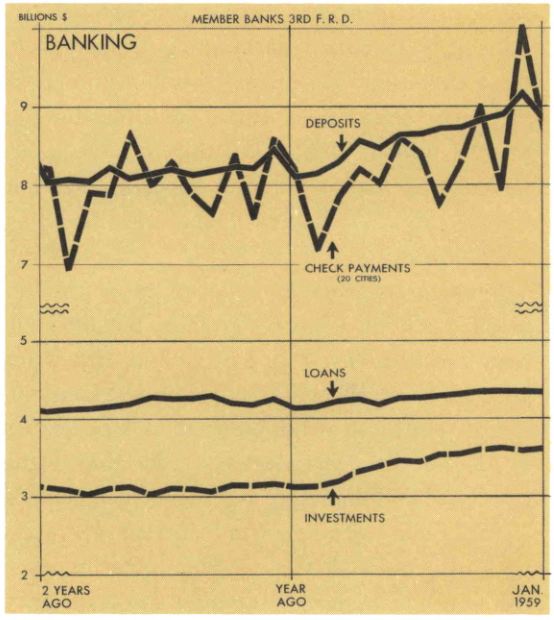
MEMBER BANKS Third Fed. Res. District (Dollar amounts in millions)	Dec. 31, 1958*	Change in year** Amount	Per cent
Loans:			
Business	$1,740	+$ 28	+ 2%
Security	143	+ 16	+ 13
Real estate	1,242	+ 88	+ 8
To banks	3	—	— 5
Consumer	1,180	— 10	— 1
All other	153	+ 1	+ 1
Total	$4,461	+$123	+ 3%
Less reserves	114	+ 12	+ 12
Loans, net	$4,347	+$111	+ 3%
U. S. Gov't securities	2,632	+ 263	+ 11
Other securities	957	+ 113	+ 13
Deposits: Demand	$6,251	+$164	+ 3%
Time	2,924	+ 322	+ 12
Total deposits	$9,175	+$486	+ 5%
Capital accounts	912	+ 32	+ 4

Earnings, expenses, and profits	Year 1958*		
Earnings:			
On U. S. Gov't securities	$ 62.1	+$ 3.0	+ 5%
On other securities	24.4	+ 4.5	+ 23
On loans	232.1	+ 3.3	+ 1
All other	57.9	+ 3.6	+ 7
Total earnings	$376.5	+$14.4	+ 4%
Current expenses:			
Salaries and wages	$109.1	+$ 5.6	+ 5%
Interest on deposits	55.6	+ 10.7	+ 24
All other	85.9	+ 2.2	+ 3
Total expenses	$250.6	+$18.5	+ 8%
Net current earnings	$125.9	—$ 4.1	— 3%
Recoveries, profits, and transfers from reserves	$ 25.6	+$19.4	+313%
Losses, charge-offs, and transfers to reserves	32.9	— 7.9	— 19
Taxes on income	46.2	+ 8.2	+ 22
Net profits	$ 72.4	+$15.0	+ 26%
Cash dividends declared	39.2	+ 2.1	+ 5

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

FOR THE RECORD...





SUMMARY

	Third Federal Reserve District — Per cent change, Jan. 1959 from mo. ago	Third Federal Reserve District — Per cent change, Jan. 1959 from year ago	United States — Per cent change, Jan. 1959 from mo. ago	United States — Per cent change, Jan. 1959 from year ago
OUTPUT				
Manufacturing production	— 2	— 1	+ 2	+ 8
Construction contracts	— 6	+ 8	+ 2	+12
Coal mining	+ 2	+ 1	— 4	— 3
EMPLOYMENT AND INCOME				
Factory employment (Total)	— 1	— 3	— 1	— 2
Factory wage income	— 1	+ 3	....	....
TRADE*				
Department store sales	— 5	+ 6	— 3	+ 6
Department store stocks	— 1	+ 1	+ 1	+ 3
BANKING (All member banks)				
Deposits	— 3	+ 9	— 4	+ 9
Loans	— 1	+ 5	0	+ 6
Investments	+ 1	+15	+ 1	+17
U.S. Govt. securities	+ 2	+17	+ 1	+18
Other	— 1	+11	— 1	+14
Check payments	—13†	+ 7†	— 7	+ 4
PRICES				
Wholesale	....	....	0	+ 1
Consumer	0‡	+ 1‡	0	+ 1

*Adjusted for seasonal variation. †20 Cities ‡Philadelphia

LOCAL CHANGES

	Factory* Employment — Per cent change Jan. 1959 from mo. ago	Factory* Employment — Per cent change Jan. 1959 from year ago	Factory* Payrolls — Per cent change Jan. 1959 from mo. ago	Factory* Payrolls — Per cent change Jan. 1959 from year ago	Department Store† Sales — Per cent change Jan. 1959 from mo. ago	Department Store† Sales — Per cent change Jan. 1959 from year ago	Department Store† Stocks — Per cent change Jan. 1959 from mo. ago	Department Store† Stocks — Per cent change Jan. 1959 from year ago	Check Payments — Per cent change Jan. 1959 from mo. ago	Check Payments — Per cent change Jan. 1959 from year ago
Lehigh Valley	— 1	— 7	— 5	— 9	....	....	....	....	— 9	— 2
Harrisburg	— 2	— 2	— 2	— 1	....	....	....	....	—10	+ 6
Lancaster	0	0	— 1	+ 8	+ 9	+29	0	+15	— 7	+ 3
Philadelphia	— 1	— 3	— 1	+ 3	— 7	+ 6	— 1	0	—13	+ 8
Reading	— 2	0	0	+10	— 6	+ 7	0	— 3	—14	— 4
Scranton	— 2	— 3	— 1	0	0	+ 8	0	+ 2	—16	— 2
Trenton	0	— 7	+ 1	— 1	— 2	+ 1	+14	+ 2	—11	— 8
Wilkes-Barre	0	— 3	0	— 1	— 6	— 2	— 2	— 1	— 5	+ 9
Wilmington	0	— 4	+ 4	+ 4	+ 4	+12	+ 8	+ 8	—17	+32
York	— 1	— 2	+ 1	+ 5	— 6	+ 5	— 1	+ 6	— 4	+ 3

*Not restricted to corporate limits of cities but covers areas of one or more counties.
†Adjusted for seasonal variation.