Business Review

Electric Utilities Go Nuclear

Philadelphia Prices and How They Grew

December 1966

Federal Reserve Bank of Philadelphia

Electric Utilities Go Nuclear

. . . Coal is still king, but uranium is heir apparent.

Philadelphia Prices and How They Grew

. . . Consumer prices locally broke the 1953-1965 pattern this year, and most bargains have disappeared. Outlook for '67 isn't hopeful.

BUSINESS REVIEW is produced in the Department of Research. Donald R. Hulmes prepared the layout and artwork. The authors will be glad to receive comments on their articles.

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ELECTRIC UTILITIES GO NUCLEAR

by Evan B. Alderfer

Peach Bottom is a little off-beat place in York County, Pennsylvania, just nine miles upstream from Conowingo Dam. Oyster Creek modestly wends its way seaward just a few miles north of Barnegat, New Jersey. Oyster Creek no longer has oysters; and Peach Bottom never did have peaches; but both places have made headlines as sites of power plants which upon completion will make electricity by cracking atoms.

So indispensable to daily living is electricity that it is taken for granted. It is as common as the bottle of milk on the doorstep or the loaf of bread hung on the doorknob; but unlike bread and milk prices, which have advanced substantially over the years, electricity is almost as cheap as it was a generation ago. Larger-scale production and growth in consumption of electricity go hand in hand to hold unit costs in check.

Most of the trillion kilowatt hours of electricity generated in the country last year were produced by central station power plants burning fossil fuels—coal, oil, and gas. Coal alone supplies half of the electrical energy, and electric utilities are the bituminous coal industry's best customers.

Now that the latest nuclear plants can compete on a cost basis with coal-burning stations, some enthusiasts for the new miracle fuel are ready to order a tombstone for Old King Coal. It is a bit premature, however, to write his obituary because he continues to support the heaviest power load; and nuclear power is still a stripling, though a lusty one.

Inside the atom

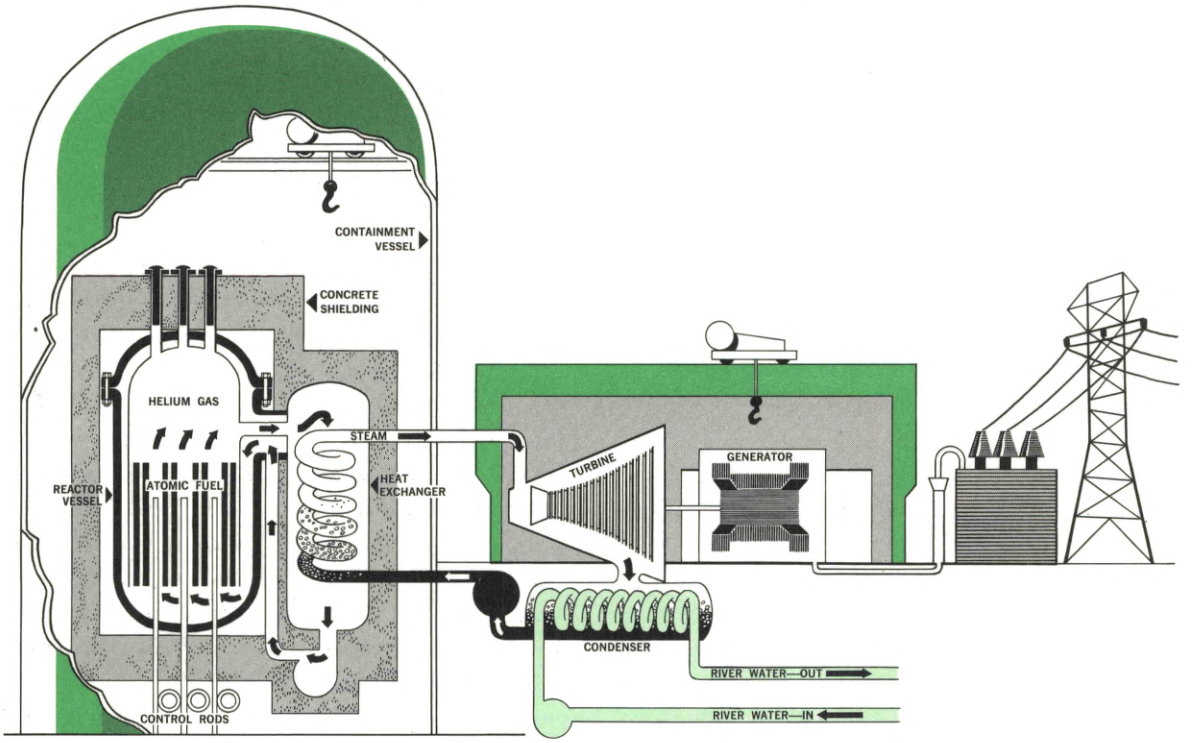
After much atom smashing to learn more about atomic anatomy, it was discovered that when a neutron "bullet" strikes the nucleus, or heart, of an atom of uranium—the heaviest of natural elements—it splits into two lighter atoms and other fission fragments. Curiously, the combined weight of the pieces is less than that of the original atom. The explanation is that the "missing mass" has been converted into energy, according to Einstein's famous formula for the equivalence of mass and energy. Inasmuch as additional neutrons are also released in the process, a chain reaction can be achieved and produce a continuous flow of energy in the form of heat. The heat is then utilized to produce electricity, as in a conventional central station power plant.

In a conventional plant of modern design, seven-tenths of a pound of coal is converted into one kilowatt-hour of electricity. In a modern nuclear power plant, however, seven-tenths of a pound of uranium fissioned in a nuclear reactor produce 2,000,000 kilowatt-hours of electricity. No wonder the utilities are enthusiastically going nuclear.

Inside a reactor

Visitors welcomed at Philadelphia Electric Company's Peach Bottom plant are impressed by the large dome-topped cylindrical steel structure that houses the nuclear works. It would be frustrating to enter because the reactor is imprisoned in a massive enclosure of concrete several feet thick,

A SKETCH OF THE PEACH BOTTOM ATOMIC POWER STATION



Source: Philadelphia Electric Company.

provided to shield personnel from radiation. But across the way at the Information Center is a push-button, cutaway exhibit that explains what goes.

The reactor is a thick-walled, cylindrical steel vessel 35½ feet tall and 14 feet in diameter. Geometrically arranged and in upright position within the reactor vessel, as shown in the diagram, are some 800 graphite-clad fuel elements, each unit resembling oversized pencils 12 feet tall and 3½ inches thick. Fueling the reactor takes about a quarter-ton of uranium and a ton-and-a-half of thorim, a close relative of uranium in the atomic family. Interspersed between the the fuel elements are retractable control rods containing boron which serves as a kidnapper of neutrons. Control rods are inserted to blot up neutrons if the chain reaction gets too vigorous, or withdrawn to intensify the heat as desired.

Helium gas, the reactor's coolant, is blown through the reactor to pick up the heat released by nuclear fission. The hot helium gas is piped through a steam generator, or boiler, where its heat is used to produce steam which spins the turbine-generator to produce electricity, as in a conventional plant.

About half of the $28.5 million cost of the plant, including the site, is borne by Philadelphia Electric and the remainder by 52 cooperating utilities. The AEC has also supplied funds to support the research and development program. The 40,000-kilowatt capacity is small, as power plants

go, but this plant is a prototype—built more to prove out the gas-cooled reactor concept than to produce salable power.

Research is no primrose path

Research isn't so glamorous as its achievements are reported in Sunday supplements. On the contrary, the way of research is long, hard, and costly. It took a crash research effort of a team of top scientists and engineers to develop the world's first atomic pile (1942) and the first atomic bomb (1945). After the war, it took a prolonged period of time, a multitude of specialized scientists, and a huge amount of money to develop peacetime applications of fissionology. Atoms serve many useful purposes but here we are concerned only with power generation.

Congress created the Atomic Energy Commission (AEC) to direct atomic research both for defense and for peace. An immediate concern of the AEC was to lay in a stock of uranium, the strategic raw material required for both military and civilian use. After considerable purchases from Canada and the Belgian Congo, the AEC offered attractive prices, bonuses, and allowances for mine development to encourage domestic exploration and production. That touched off a stampede of uranium prospectors, with Geiger counters in hand, reminiscent of the gold rush a century earlier. At the peak of the uranium boom about 1,000 mines were in operation. Production in the Colorado Plateau and adjoining states surpassed expectations, whereupon the AEC inaugurated a "stretchout" of its uranium purchases to hold in check the mounting stockpile and to keep the mines in business until requirements for power production could sustain them.

Uranium, a metal somewhat resembling lead and almost twice as heavy, now comes from about 400 Western mines. The ore, which contains about one-quarter of 1 per cent uranium, is sent to mills which turn it into a crude concentrate containing 75 per cent or more uranium. There are about fifteen of these mills now producing the concentrates for sale to the AEC. The Commission's major refinery at Weldon Springs near St. Louis converts the concentrate into high-purity uranium metal or chemical salts for use in the atomic energy program.

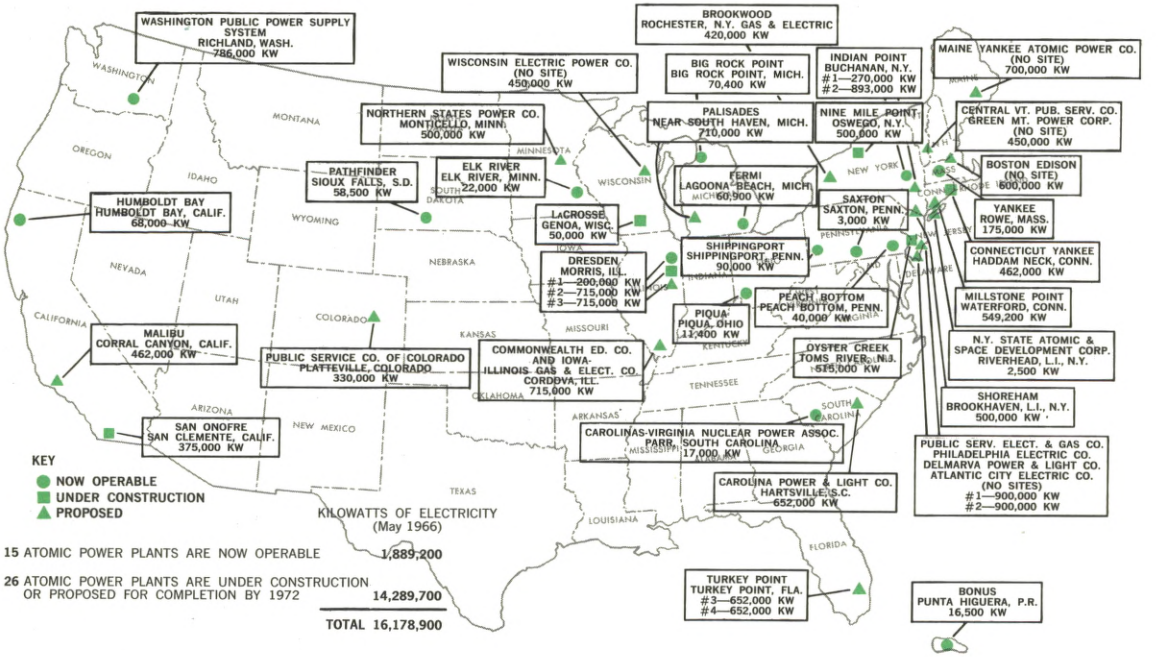
But yet more processing is required because the bulk of natural uranium is U-238 and only 7/10th of 1 per cent of natural uranium is U-235—the chain-reacting kind. Therefore natural uranium is "enriched" at huge AEC gaseous diffusion plants at Oak Ridge, Tennessee; Portsmouth, Ohio; and Paducah, Kentucky.

The AEC has already spent in excess of $1.3 billion on research and development directed toward understanding the scientific laws governing the nuclear sciences, development of materials and processes required to utilize nuclear energy for civilian power.

Early reactors were experimental—small, simple devices not much more than a pot, a pipe, a pump, and a prayer. Next, larger experimental models were built utilizing various types of moderating and cooling systems. With ever-increasing sophistication, research and development entered the power-plant prototype stage with reactors graduating to progressively larger sizes up to slightly over 200,000 kw. capacity.

At the same time, experiments were conducted with many different kinds of cooling and moderating systems. There is the boiling-water reactor; the gas-cooled, graphite-moderated reactor; the organic cooled and moderated; the sodium cooled and graphite moderated, the pressurized water; the heavy water cooled and moderated; and still others. Almost everything was tried except ice water, soda water, and beer.

CENTRAL STATION ATOMIC POWER PLANTS IN THE U.S.



Source: Atomic Industrial Forum, Inc.

Nuclear central station precursors

In 1957 the first commercial reactor built by the AEC went into action to sell steam to the Duquesne Light Company at Shippingport, Pennsylvania, and it is still operating.

To encourage investor-owned utilities to construct nuclear power plants, the AEC offered various kinds of financial and technical assistance. A number of utilities responded with construction of prototype plants of different kinds and varying size up to 270,000 kw. capacity. Most of these have been running long enough to demonstrate their technical reliability, and the larger installations also foreshadowed economically competitive possibilities with conventional fossil fuel plants. The steady progress stimulated construction of more and larger reactors by various utilities throughout the country.

Growth of atomic power

Some notion of the efflorescence of nuclear power plants is shown on the map. It will be noted that as of May of this year there were 15 plants in business and 26 more in various stages of completion in the United States. The fifteen operating or operable installations have a total capacity of almost 2,000,000 kilowatts which, however, is not yet 1 per cent of the country's total electric generating capacity. But by 1972, when the 26 plants abuilding go on line, atomic kilowattage will have grown eightfold.

Even more surprising than the upsurge in construction is the downsurge in cost of electricity to be produced by the large new plants. As in conventional plants, the larger the capacity the smaller the unit cost of electrical output. The pioneer plant at Shippingport originally en-

countered operating costs of 50 mills per kilowatt-hour. The big new plants now being built with a half-million to a million-kilowatt capacity are engineered to produce electricity at a cost close to four mills per kilowatt-hour, which compares favorably with the best coal-burning plants. Moreover, construction costs per kilowatt of capacity, which were outrageously high for the earlier nuclear plants, have been reduced very substantially, though still somewhat higher than construction costs of conventional plants.

In an appraisal of nuclear and conventional power-generating costs, one authority warned recently that nuclear power does not necessarily "have it made." His point was that five to ten years more of operating experience are needed to prove the new industry's ability to stand up to the coal-burning plants in the competitive arena. Nevertheless, the utility industry is optimistic, judged by the millions it is pouring into nucleonics.

Scarcely a week goes by without press reports of this and that utility announcing plans for nuclear construction. And recently the go-nuclear trend received another strong boost when TVA, right in the heart of the Appalachian coal belt, announced plans to erect a 2.2 million kw. plant in northern Alabama. In fact, so vigorous is the expansion of nuclear plant construction that rising prices of uranium and renewed activity of uranium mining is beginning to take on the resemblance of a second uranium boom.

The beauty of atomic power

A nuclear power plant does not pollute the atmosphere with fly ash and sulfurous fumes. It is a fireless cooker of kilowatts and as such does not enervate the people of the cities it energizes. This is a compelling argument in favor of nuclear power, now that most of the country's population is huddled together in great metropolitan hives where most of the industrial and commercial, as well as residential and cultural pursuits, are carried on. The motor industry has already come under federal surveillance to do something about exhaust-pipe pollution. And it may not be long before city fathers will object to building fossil-fuel-burning power plants in their respective jurisdictions.

The safety of atomic power

The fact that atomic power was first used as a mighty military device makes some people fearful of a nuclear power plant. They may have qualms that the plant might explode or leak radioactive death rays. The science-wise younger generation of people know better, but older people raised on Newtonian physics are likely to be just a little scaresome and trembly. Perhaps that is why most, if not all, of the nuclear power plants built thus far are located at respectable distances away from population centers.

To be sure an accident could happen, as in any other human endeavor; but to reduce the hazard to a near-zero minimum the AEC has established elaborate safeguards to which the builder of a nuclear power plant must conform to the last jot and tittle before the Commission issues a licensing permit to build. The regulations governing operation are just as strict to assure public safety.

Nucleonic economics

A utility in need of additional capacity and undecided whether to build another coal-burning plant or to go nucleonic faces complicated questions of economics and technics. The capital required to build either type of plant runs into big money. As already indicated, a large-sized nuclear plant is somewhat more expensive to build per kilowatt of capacity than a coal-burning plant—

something in the order of $130 versus $110 depending on specifications. But the operating cost per kilowatt-hour of electricity produced may be lower by a fraction of a mill in the nuclear plant. One can't be too dogmatic, however, in making these comparisons because it also depends on accounting practices. For example, upon completion of the Oyster Creek plant, the cost of the nuclear fuel for initial loading will be about $17 million, and the fuel has an estimated life of about four years before needing replacement. Whether the $17 million is treated as a capital cost or a running expense has an important bearing in cost comparisons.

Over-all costs between the two systems run very close in the present state of the technologies. Another significant element enters into the calculus that must be given consideration—geography. For many coal-burning plants, depending on their location, a substantial part of the coal bill is freight. Thus a coal-burning plant that sits right on top of a coal mine has a unique advantage if its market for electricity is not too far away. In such areas, fossil-fuel plants are in excellent position to meet the nuclear competition.

Electric utilities on the West Coast, however, are far from coal mines and their oil and gas costs are also high. For them, geography argues strongly in favor of nuclear power. The heavily populated West Coast has a chronic problem of water shortage which may have to be alleviated by de-salting sea water. If so, there is another aspect of geography favoring nuclear plants, for they are admirably adapted to supply the heat for desalination.

In the longer view

The long-run outlook for the emerging competition between coal, the champ, and atom, the challenger, in electric-power production affords some interesting speculation. It embraces such questions as the future demand for electricity, adequacy of uranium and coal reserves, technological advances and, the most speculative of all, ever-changing costs. With respect to all these futurities, authorities have made estimates and calculations in abundance and, as you might expect, there are differences of opinion.

No one will challenge the opinion that demand for electricity will continue to grow. Demand has been doubling every ten years and from present annual electrical generation of a trillion kilowatt-hours, the Federal Power Commission projects the growth curve to 9 trillion by 2000 A.D.

The United States has huge coal reserves (unmined coal) which are said to be large enough to meet our needs for 15 centuries even after applying the usual rule that only half of the coal in place is recoverable. That obviously gives comfort to the coal industry for its trade association, in a recent report, cites our rather limited uranium reserves; and the coal people have a point. At the Hearings before the Joint Committee on Atomic Energy, early this year, a member of the AEC stated that the expanding nuclear power programs might use up our reasonably assured reserves of $8 a pound uranium concentrate by about 1980.

Higher prices, however, stimulate greater exploration and mining. The Commission's estimates of $10 to $20 a pound uranium reserves run ever so much higher than the $8 reserves. Moreover, coal is also mined at a price which may well go higher in years to come.

The brightest star in the nuclear firmament is its rapidly changing technology. In contrast with coal, which has an illustrious past, nuclear fuels anticipate a glorious future. This is not to say that advancing coal technology has reached the end of the road, but that advancing nuclear tech-

nology has just begun.

In prospect, for example, is the breeder reactor which produces more nuclear fuel than it burns up. This is analagous to starting out on a hundred-mile automobile trip with a radiator full of water and ten gallons of gas, and returning with a slightly lower water level and 15 gallons of gas in the tank. Prototype breeder reactors are already in operation. Another advantage of the breeder reactor is that it runs on U-238, not the scarcer U-235. In the 1963 Hearings of the Joint Committee on Atomic Energy, Dr. Jerome B. Wiesner, then scientific adviser to the President and Director of the Office of Science and Technology, said: ". . . in the long term it is very clear that the Nation is going to be heavily dependent on nuclear power for all its energy sources."

PHILADELPHIA PRICES AND HOW THEY GREW

by Shirly A. Goetz

When Bob Rodgers returned to his family in Philadelphia after Korea, he got a job as a service station attendant, pumping gas for $3,000 a year. But in time, he combined his natural aptitude for motors with after-hours training and became a skilled mechanic at a large automobile agency. Now he's making $7,000 a year. Unfortunately his $4,000 increase in income is partly illusory. Almost one-third of the hike has been eaten up by higher prices. Bob's current income of $7,000 has the same purchasing power as $5,800 did in 1953.

Recently this loss of purchasing power has become more acute. Mrs. Rodgers' presence on the supermarket picketline and her husband's request for a pay boost in excess of the guideposts are related to the more than 2½ per cent rise in prices this year—up from an average annual gain of 1½ per cent in the 1953-1966 period as a whole. For the Rodgers, this will mean a loss in buying power 60 per cent greater than they would have faced if prices had risen at the 1953-1966 average rate.

The story is even worse if price increases are compared to the more recent past. In 1961, according to the U.S. Department of Labor,[1] the average Philadelphia family spent $6,007 for current consumption. If this family bought the same goods and services in 1965, they would have had to pay $354 more than in 1961—an average increase of $88 a year. If prices continue to gain throughout 1966 as they did in the first six months, Philadelphians will need $163 more than last year just to maintain the same 1961 standard of living.

[1] *Survey of Consumer Expenditures, 1960-61.*

As most cities go, so goes Philadelphia

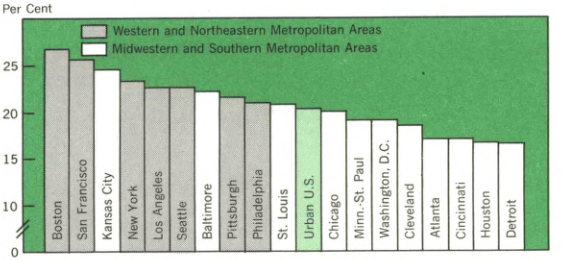
Had Bob gone elsewhere than Philadelphia, he would have faced a similar situation. From 1953 through the first half of 1966, price increases in 18 large metropolitan areas have ranged from a low of 16½ per cent in Detroit to a high of 27 per cent in Boston. The 21 per cent rise in Philadelphia is close to the U.S. urban average. As Chart 1 shows, prices generally have climbed faster in the Northeast and the West than in the South and Midwest. Philadelphia's middle-of-the-road performance is the best among its Northeastern neighbors.

Although the average price rise in Philadelphia has been about 21 per cent, naturally not all goods and services have increased at this rate.

CHART 1

PRICE RISES AROUND THE U.S.

Percentage increase in consumer prices, 1953 to mid-1966.



Consumer prices in Philadelphia have risen about at the average rate for all urban areas in the U.S., but less rapidly than in other Northeastern cities.

For that matter, not all prices have risen. Today's radio and television sets, while of much better quality, cost considerably less than they did 13 years ago. But these are the exceptions. All *major* components of the consumer price index[2] have increased from 1953 to the first half of 1966.

Rodgers' family budget

The Rodgers, along with millions of other families throughout the nation, have influenced prices by what they have bought and chosen not to buy. What have the Rodgers purchased over the last 13 years? By 1966 they had acquired a house and a car. The family's larger income plus the desire for a better life helped to push up spending for these items—as well as for recreation, reading, and education, and personal and medical care. In contrast, they have increased their spending relatively less for food and apparel. Table 1 illustrates their changing spending pattern between 1953 and 1966.

[2]*The consumer price index measures changes over time in prices of a market basket of goods and services designed to represent price movements of all consumer goods and services purchased by urban wage and clerical workers. After December, 1963, the index was revised to include single persons as well as families and to reflect changes in the pattern of consumer expenditures derived from the* Survey of Consumer Expenditures, 1960-61.

TABLE 1

RODGERS' FAMILY BUDGET

Percentage distribution of estimated expenditures for current consumption by the average Philadelphia family[1]

	1953	1st half 1966
These have increased:		
Housing	26%	28%
Transportation	11	13
Recreation, reading, and education	6	7
Medical care	5	6
Personal care	2	3
"All other" expenditures	6	7
These have decreased:		
Food	32	26
Apparel and upkeep	12	10
Total	100%	100%

[1]*1953 and 1966 are not strictly comparable because of changes in components and enlarged area coverage.*

1953 figures were obtained from Survey of Consumer Expenditures, 1950, *and adjusted for price changes between 1950 and 1953.*

1966 figures were obtained from Survey of Consumer Expenditures, 1960-61, *and adjusted for price changes between 1960-61 and first half of 1966.*

Chief cost culprits—medical care and transportation

Of all items in the Rodgers' budget, the one that has risen the most in price has been medical care —up almost 60 per cent.

This large rise in medical costs is not surprising. As population in general and the number of oldsters in particular have gone up, more people have become candidates for care. In addition, with increased education and higher incomes, more people have taken advantage of medical knowledge. Unfortunately, the increased demand has not met an increased supply. Hospitals, facilities, and staffs haven't been able to keep pace. This shortage of needed services and increased demand have created an inevitable pull on prices. Partly as a result, a larger share of family budgets is spent on medical care today than in 1953.

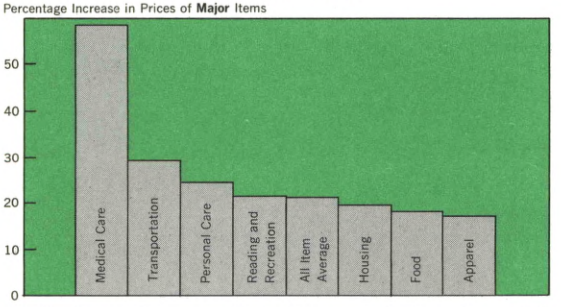
Another large increase in prices has occurred in transportation. In Philadelphia, private transportation costs have gone up about 20 per cent in contrast to a whopping 70 per cent rise in public transportation costs.

It hasn't been so much an increase in the price of cars as the cost of keeping them operating. High productivity and stiff competition from abroad have helped to moderate increases in automobile prices, but as the number of cars has

CHART 2

WHICH PRICES INCREASED THE MOST IN PHILADELPHIA?

1953 to mid-1966.



Medical care has scored the largest gain in prices—followed by transportation. In contrast, apparel, food, and housing have been relative bargains.

risen by more than 60 per cent, repair bills and insurance rates have grown markedly.

As more people have become car owners, fewer have ridden buses, trains, or subways. But expenses of operating the near-empty buses and trains have remained high. Profits have disappeared. Transportation companies have had difficulty replacing inefficient, expensive capital equipment. This, too, has raised costs, further discouraged passengers, and put additional pressure on prices. This chain reaction of lower revenues, higher costs, higher prices, and lower revenues has been difficult to break.

Goods and services

Although other *major* kinds of consumer prices have risen more slowly than medical care and transportation, they have followed the same pattern. Prices of most goods—such as food prepared at home and clothing—have gone up only moderately. In contrast, the cost of services generally has soared. Changing consumer tastes and higher professional fees and wage rates, which were not offset by increased efficiency, have helped to boost service prices—particularly movie admissions, haircuts, and domestic work.

Big bargains—food, apparel, and housing

Although Mrs. Rodgers has protested recently about food prices, in the past 13 years generally, she has found food a real bargain. It has risen less than the average of all items.

To a large extent, increases in food prices have been held down by higher farm productivity. From 1953 to 1965 output per man-hour jumped 80 per cent compared to 35 per cent in nonagricultural industries. With higher productivity and demand for food rising more slowly than income, most families in Philadelphia have seen food costs decrease as a share of their budgets. In 1953 food outlays represented 32 per cent of the Rodgers' budget. By 1966 this percentage shrank to 26 per cent.

Eating out is a different story. From 1953 to 1966 the price of the lowly hamburger at Joe's Snack Bar has zoomed as well as that of a steak dinner served amid candlelight and soft music. This year the cost of eating out in Philadelphia is 40 per cent higher than in 1953. By comparison, prices for food prepared at home have risen 14 per cent. Fortunately for the Rodgers' pocketbook, food away from home represents only 20 per cent of their total food budget.

As with food, a decline in the relative importance of clothing expenditures plus competition between less expensive synthetic fibers and natural fibers has helped to exert a dampening effect on apparel prices. In Philadelphia they have risen 18 per cent.

While food and apparel have been the biggest bargains during 1953-1966, housing prices also have gone up less than the general price level. Although domestic service, property insurance, repair and maintenance have increased sharply,

telephone rates, electricity, and fuels have risen only moderately. Prices of housefurnishings actually have dropped, reflecting major changes in merchandising and the growing importance of discount houses.

1966—What's happened to prices?

Unfortunately in the past few months food and apparel have lost some of their low-cost appeal. Apparel has gone up 2½ per cent and food has soared 6 per cent over the comparable period last year. These aggregate increases do not reveal the grim details of meat, poultry, and fish prices which are 13 per cent higher than in the first half of 1965, footwear 6 per cent greater, bread and dairy products 5 per cent more, homeownership costs and men's and boys' clothing 2 per cent ahead of last year.

Increases in food prices have created the biggest clamor. Long accustomed to a high return on their food dollars, housewives in Philadelphia have seen 40 per cent of the increase in food prices since 1953 occur in the last 18 months, with meats the major culprit.

Meat prices have risen as part of the regular hog-production cycle. Hog raising decreased in response to low prices in 1963-64 relative to costs. With short supplies resulting in higher pork prices, consumers have switched to other meats, driving their prices up also.

Adverse weather conditions, smaller crops, reduced Government surpluses, increased international demand, and high operating costs are some of the factors underlying price rises of other food products.

TABLE 2

SUPERMARKET SPECIALS?

	Philadelphia	
	1st half 1965	1st half 1966
Bacon, lb.	$ .73	$1.00
Pork chops, lb.	.96	1.15
Eggs, large Grade A, doz.	.52	.62
Butter, lb.	.72	.77
Hamburger, lb.	.51	.56
Frying chicken, lb.	.40	.44
Milk, delivered, ½ gal.	.64	.67
Lettuce, size 24 head	.28	.30
Apples, lb.	.17	.18
White bread, lb.	.21	.22

Clothing and footwear prices have been pushed upward by increased civilian and military demand, and greater operating expenses. Rises in repair and maintenance costs plus higher mortgage rates, resulting from a scarcity of new mortgage funds and the high interest-rate structure have contributed to the increase in homeownership costs.

Whether or not these price rises will continue into 1967 is open to question. If private and Government demand remain strong and if costs rise, continued vigorous pressure on prices may be difficult to avert.

Business Review

Federal Reserve Bank of Philadelphia

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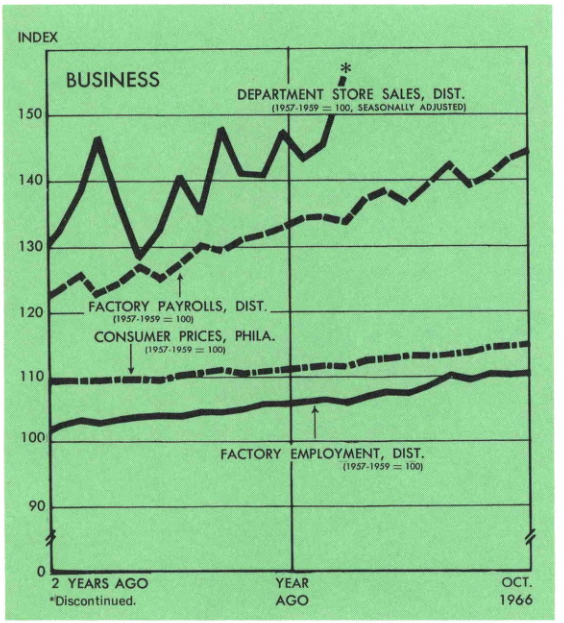
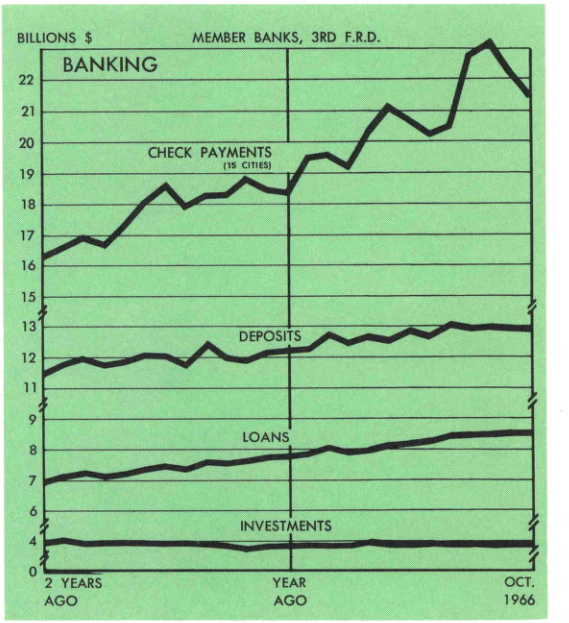
FOR THE RECORD . . .





SUMMARY

	Third Federal Reserve District			United States		
	Per cent change			Per cent change		
	Oct. 1966 from		10 mos. 1966 from year ago	Oct. 1966 from		10 mos. 1966 from year ago
	mo. ago	year ago		mo. ago	year ago	
MANUFACTURING						
Production	.....	.....	.....	+ 1	+ 9	+10
Electric power consumed	— 2	+11	+ 9	.....	.....	.....
Man-hours, total*	+ 1	+ 3	+ 4	.....	.....	.....
Employment, total	0	+ 3	+ 3	.....	.....	.....
Wage income*	+ 1	+ 8	+ 8	.....	.....	.....
CONSTRUCTION**	—21	—11	— 2	+ 1	— 6	+ 4
COAL PRODUCTION	+12	+ 3	— 1	+ 9	+ 3	+ 3
BANKING						
(All member banks)						
Deposits	0	+ 5	+ 7	0	+ 5	+ 7
Loans	0	+10	+11	0	+10	+13
Investments	0	0	— 1	0	— 2	0
U.S. Govt. securities	— 1	— 9	— 9	0	—11	— 8
Other	0	+12	+12	— 1	+ 8	+11
Check payments***	— 3†	+17†	+17†	— 2	+18	+16
PRICES						
Wholesale	.....	.....	.....	— 1	+ 3	+ 4
Consumer	0‡	+ 4‡	+ 3‡	0	+ 4	+ 3

*Production workers only
**Value of contracts
***Adjusted for seasonal variation

†15 SMSA's
‡Philadelphia

LOCAL CHANGES

Standard Metropolitan Statistical Areas*	Manufacturing				Banking			
	Employment		Payrolls		Check Payments**		Total Deposits***	
	Per cent change Oct. 1966 from		Per cent change Oct. 1966 from		Per cent change Oct. 1966 from		Per cent change Oct. 1966 from	
	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago
Wilmington	— 1	+ 4	+ 2	+ 7	+ 2	+53	0	+ 5
Atlantic City	.....	.....	.....	.....	— 5	+ 6	— 3	+13
Trenton	+ 1	+ 3	0	+ 4	+15	+35	+ 2	+ 4
Altoona	— 1	+ 9	— 1	+12	— 2	+17	+ 2	+10
Harrisburg	— 1	+ 5	— 1	+10	— 2	+ 7	— 2	+10
Johnstown	0	+ 5	+ 1	+10	0	+ 8	— 1	+ 5
Lancaster	0	+ 4	0	+ 7	— 4	+ 8	— 1	+ 9
Lehigh Valley	0	+ 1	0	+ 6	— 2	+ 5	0	+ 4
Philadelphia	0	+ 3	+ 1	+ 9	— 7	+10	0	+ 7
Reading	— 1	— 1	+ 1	+ 6	+ 2	—13	+ 1	—40
Scranton	+ 1	+ 6	+ 1	+11	+ 4	+10	— 1	+ 8
Wilkes-Barre	+ 1	+ 9	+ 3	+17	+ 4	+ 8	+ 1	+ 6
York	+ 2	+ 2	+ 4	+11	+ 5	+21	— 1	— 1

*Not restricted to corporate limits of cities but covers areas of one or more counties.
**All commercial banks. Adjusted for seasonal variation.
***Member banks only. Last Wednesday of the month.