SEPTEMBER 1957

business review

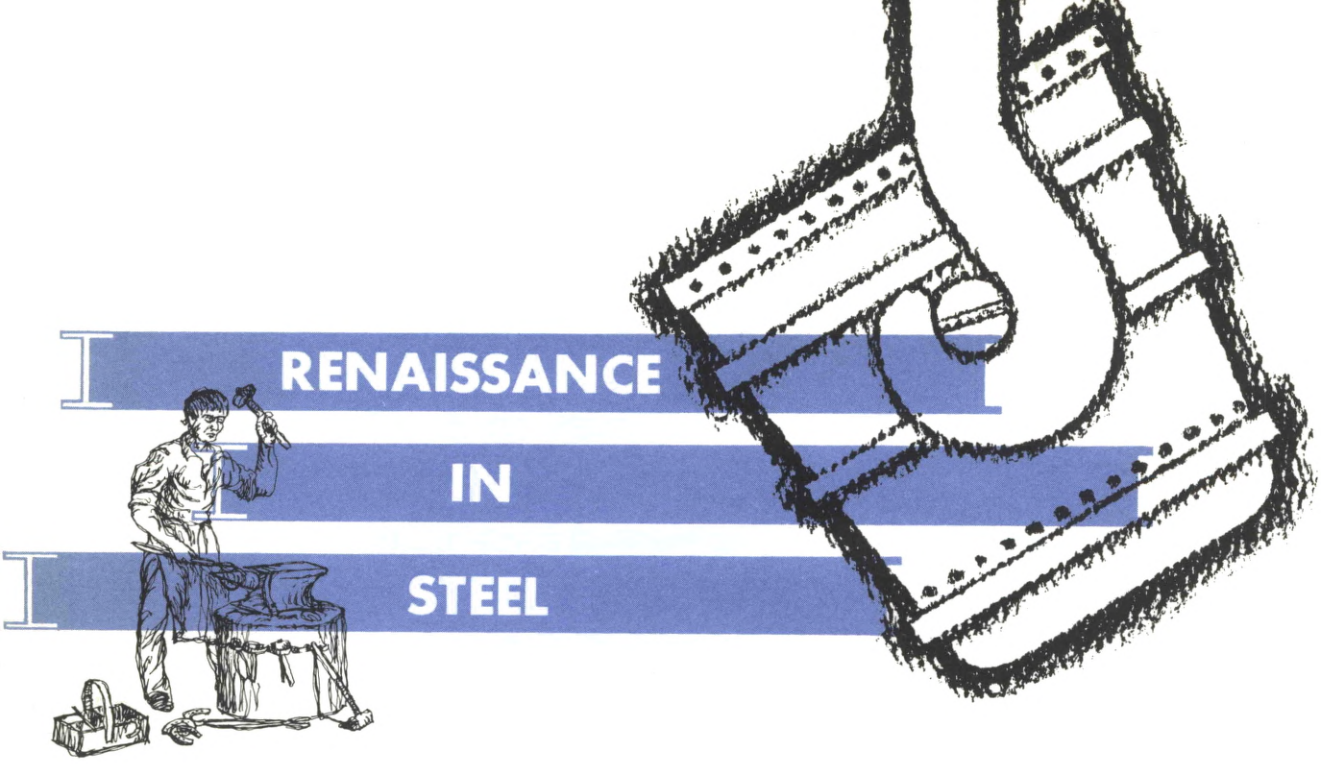
FEDERAL RESERVE
BANK OF
PHILADELPHIA

RENAISSANCE IN STEEL

Once the center of the Colonial iron industry the Delaware Valley is making a comeback in steel. Due to a happy combination of recent trends, the area now offers important new advantages to steel producers.

HOW HAS THE DROUGHT HIT THIRD DISTRICT FARMERS?

Crop prospects for many farmers have been shattered by the record-breaking drought. Production costs have risen steeply, and farm cash income will be off sharply over a wide area.



RENAISSANCE IN STEEL

Steel girders and old iron stoves—they might serve as symbols that span the interwoven history of an industry and an area.

The girders, piled high near shiny, modern mills, could stand for the Third Federal Reserve District's new prominence in steel. The stoves, with foundry names like Batsto, Hopewell, and Atsion on their heavy doors, are rusty reminders of the time when the American iron industry was centered near Philadelphia.

We have the country's newest integrated steel mill and we also had the first commercially important iron works. It was built near Pottstown, Pennsylvania, about 1720. The works prospered and others followed. By the time of the Revolution, more than 60 furnaces and forges burned brightly in the Schuylkill Valley and in the pine barrens of New Jersey. It is said they could turn out 100,000 muskets a year. The Philadelphia area has been called "the cradle of democracy" and was, in fact, its first arsenal.

Colonial Pennsylvania and New Jersey, each in its own way, had what it took to make iron. Both had plently of wood for charcoal and water for power. The hills behind the Schuylkill contained rich and accessible deposits of ore and limestone. Nature was not quite so kind to New Jersey, but its iron masters didn't lack for ingenuity. They scooped bog ore out of river beds and fluxed their furnaces with clam and oyster shells from the seashore. And the result was surprisingly good iron.

The iron works along the Schuylkill and in the pines twice helped defeat the British, but in the 1840's they met an invincible adversary—new technology. As scientists found that anthracite made better smelting fuel than charcoal, efficient new iron works were built in the hard-coal fields.

Clam shells and charcoal couldn't compete. After 100 years of leadership, our early furnaces began to flicker out. Few survived the Civil War, and by 1885 only ghost towns and history remained.

But neither Eastern ore nor anthracite was long able to satisfy the needs of a fast-growing nation. Progress demanded huge quantities of steel which, in turn, required bituminous coking coals and the then unlimited Midwestern ores. The paths of these two materials crossed most conveniently at Pittsburgh, and this is where the industry was centered by the turn of the century.

The Third District area continued to make an important amount of iron and steel, but it lost the title of leader. Pittsburgh became "the steel city" and our mills labored in its shadow.

RECIPE FOR A RENAISSANCE

Once again the industry seems to be moving. The Pittsburgh area is still tops but it is slipping. It now has 35 per cent of the nation's steel-making capacity, compared to 42 per cent in 1940.[1] Meanwhile, capacity in the Third District, particularly in the Delaware Valley, has grown faster than the national total. There are many reasons. Developments all along the production chain—from mines to markets—have enhanced the District's desirability.

Raw materials

The steel industry is especially subject to the tyranny of raw materials. It takes roughly one ton each of iron ore and coal, one-half ton of scrap, and one-quarter ton of limestone to make a ton of steel. Steel plants must be located where these materials can be cheaply assembled. More and more the Third District is becoming just this kind of focal point.

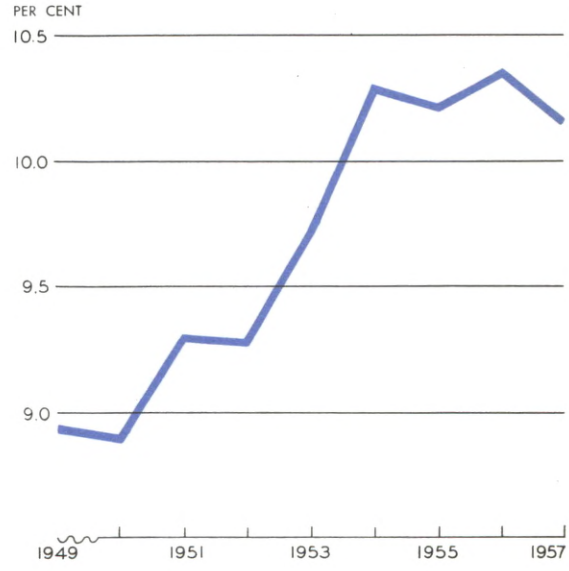
For many years Minnesota has supplied the bulk of American iron ore requirements. Ore from the Mesabi Range was easily mined and shipped through the Great Lakes. Cost, quality, and accessibility were good—too good to last. World War II and the following boom depleted the Mesabi reserves until now only an estimated ten to fifteen years' supply remains.

Steel companies, however, have not been caught unaware. They have been seeking alternative sources of ore and they have recently found two excellent ones. The first is in Venezuela, a huge mountain of iron called Cerro Bolivar. The other is in Canada on the Labrador-Quebec border. Both are so vast that their true reserves are still unexplored. Experts can only call them "enormous."

These new finds yield the premium quality ore the industry now demands. It might seem anomalous that, with greatly improved techniques for

CAPACITY TO MAKE STEEL HAS INCREASED FASTER HERE THAN IN THE NATION

Third District steel capacity as a per cent of the United States

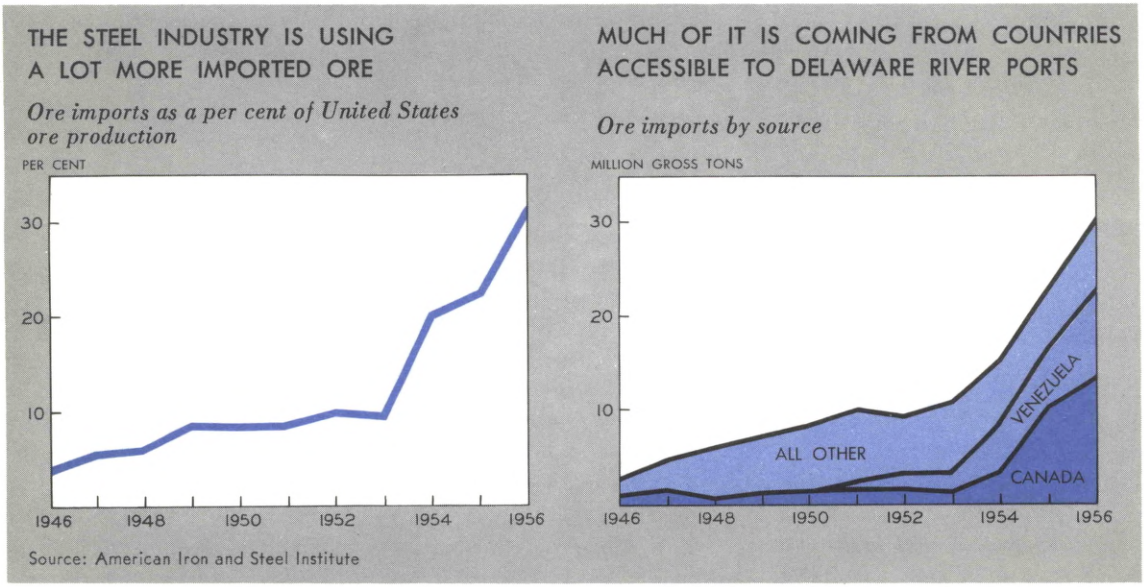


Source: American Iron and Steel Institute, and Iron Age

[1] Capacity is a measure of maximum output with allowance for normal repairs, maintenance, product changes, etc. Thus, with less than average shut-down time or extra efficiency it is possible to produce more than 100 per cent of rated capacity.

processing low-grade ore, many steel men are insisting on higher quality than ever. But they are, and with good reason. Premium ore, of course, contains more iron per ton. Its use can increase the steel output of existing facilities by as much as 20 per cent, circumventing, at least temporarily, the high cost of new plants and additional workers.

How do these ore discoveries benefit the Third District? It's simple. We have an excellent port, well located between Canada and Venezuela.



Ocean-going vessels can cheaply bring this rich foreign ore to our steel mills. The Delaware, deep now and due for $9 million worth of deepening next year, already is handling about one-third of the nation's ore imports. As Mesabi reserves wane and the industry becomes more dependent on overseas sources, the need for a location near an eastern port, such as ours, could become crucial.

Tremendous heat is required to "blast" pig iron from ore and turn iron into steel. We have mentioned how charcoal was first used, then anthracite, and now coke. Pittsburgh is near the sources of coking coal and this helps to account for its prominence. But the importance of this advantage is diminishing. Increased efficiency has cut the amount of coal needed to make a ton of steel from 1.5 tons in 1939 to less than one ton today. It is still costly to bring coking coal here from western Pennsylvania and West Virginia, but we need relatively less of it.

The decline of coal is likely to continue. In fact, new heating processes may eliminate its use entirely. Furnaces fired with electricity or even oil or natural gas are already a reality, though not yet widely used. If and when the steel industry abandons coal, good supplies of these substitute fuels should be available here.

When steel becomes obsolete, no longer needed in one product, it often returns to the furnaces as scrap. Scrap is melted down and mixed with pig iron to make new steel. There is no telling how many times one particle of steel may make this

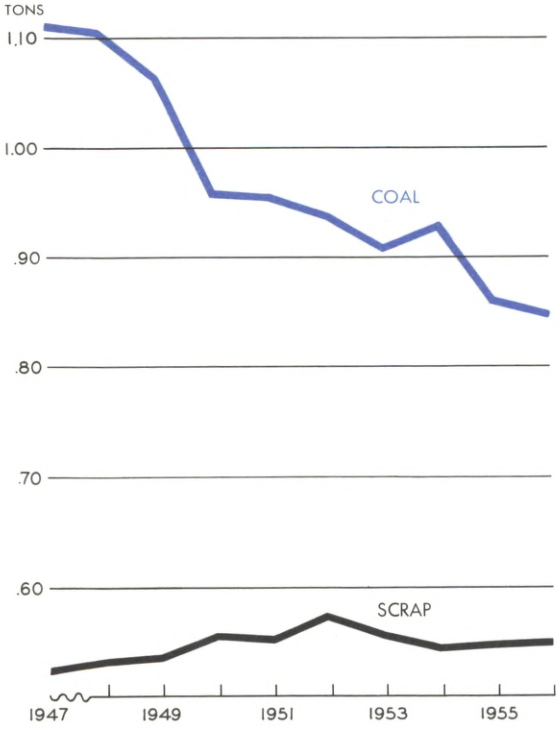
round trip. It is estimated, however, that about one-third of the 3 billion tons made in the United States since 1880 has already been returned as scrap.

The use of scrap is increasing. The industry now buys more than one-half a ton of scrap for each ton of steel produced. It takes much less fuel to melt scrap than it does to make steel from iron ore. And plenty of scrap is available. High-level steel output and accelerated obsolescence have steadily increased the potential supply.

The scrap situation also favors the Third District. Scrap "grows" in steel markets—areas that consume the most new steel logically produce the most scrap. The Delaware Valley is right in the middle of one of the biggest markets in the world (more about this in a minute), so it is easy to "harvest" scrap and bring it to our mills.

FURNACES ARE USING MUCH LESS COAL AND SOMEWHAT MORE SCRAP TO MAKE A TON OF STEEL

Industry consumption of scrap and coal per ton of steel produced



Source: American Iron and Steel Institute

Labor

Photographs of steel plants often show blinding hot metal in, running through, or coming out of, impressively complicated machinery. There is usually a man somewhere looking as though he is about to push a button. The impression is that machines, not men, make steel.

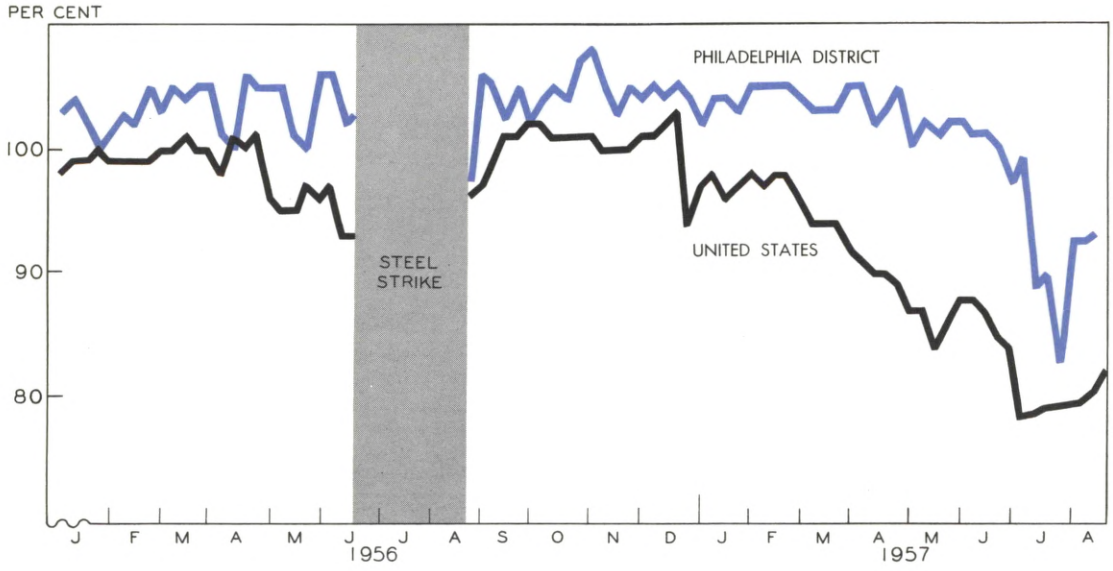
This is not quite true. The nation's blast furnaces and steel mills employ more than one million workers. In fact, labor costs account for 33 per cent of the sales dollar in steel versus only 25 per cent for all manufacturing industries.

Labor is undoubtedly important, but is it a locational factor? Steel workers are highly unionized, and collective bargaining has minimized regional wage differences. It is unlikely that a steel mill would ever pack up and move in search of cheaper labor, as textiles have done. But the availability of labor must be considered. A new plant can use as many as 10,000 workers and it gets most of them locally. Management and a few key employees may be transferred from other locations, but the bulk of the labor force is hired and trained on the spot.

In labor, too, the District has advantages. We don't have many experienced steel workers available, but then who has these days? We do have a pool of unemployment to draw from, however. As a percentage of the labor force, unemployment in the Philadelphia area averaged about 5.5 per cent in 1956, compared to 3.8 per cent for the nation. Workers might also be attracted from the anthracite towns and other nearby localities where pockets of chronic unemployment exist.

PHILADELPHIA DISTRICT MILLS HAVE OPERATED CLOSER TO CAPACITY

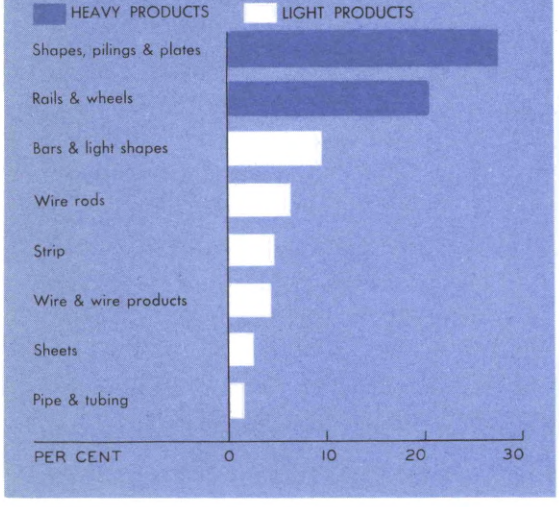
Steel ingot production as a per cent of capacity



BECAUSE . . .

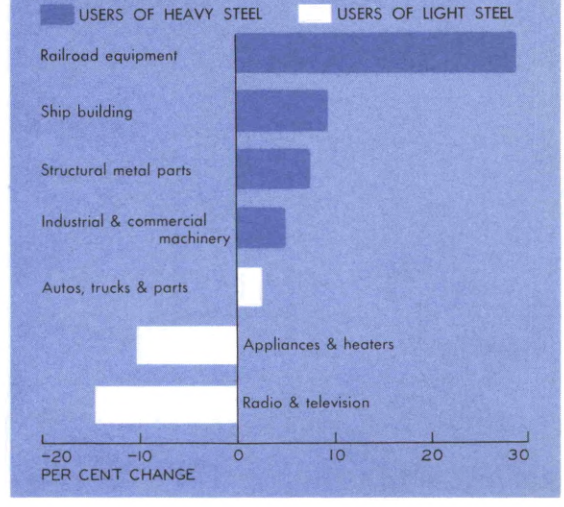
THEY SPECIALIZE IN HEAVY STEEL

Third District capacity to produce selected steel products, as a per cent of the nation's



AND THE DEMAND FOR HEAVY STEEL HAS BEEN STRONG

Production changes in various industries—average first six months 1956 to average first six months 1957



Markets

Steel mills have to get their raw materials cheaply, but perhaps more important they should be close to their markets. Finished products cost much more to move than raw materials—often two to three times as much. Steel rides to market in many shapes and forms which require special handling, but coal and ore can be dumped in hopper cars or ships and moved in bulk.

Emphasis on market proximity has increased in recent years. One reason is that the customer now pays the actual freight. This doesn't sound so unusual, but he didn't always. Until 1924 the industry used the "Pittsburgh plus" system, whereby buyers paid transportation charges from Pittsburgh no matter where the steel was made or how far it was shipped. "Pittsburgh plus" was modified into a multiple basing-point system but, though diluted, the principle was the same. There were several base cities instead of one and the customer automatically paid freight charges from the nearest city. Both these systems favored Pittsburgh producers and helped keep the industry concentrated there.

In 1948, the Supreme Court declared the basing-point system illegal. Since then customers have been required to pay only the actual freight from where the steel is made to where it is used. Now, considerable savings can be obtained by buying close to home. Conversely, nearby producers can offer better over-all prices than distant producers.

Large integrated mills make another point for nearness to market. Integration, in this sense, means continuous production at one site. Coal is turned into coke; ore is melted into pig iron; iron becomes steel, and is rolled or shaped into finished products "all under one roof." The process—sort of a white-hot assembly line—provides all the economies of mass production. But mass production also has its prerequisites—huge sums of capital plus a large nearby market to absorb increased output.

The industrial Northeast is just the kind of market steelmakers like to be near. The New England and Middle Atlantic states have about one-fourth of the nation's population and one-third of its industrial production. Within 100 miles of Philadelphia there are 23 million people and half a million business firms, and they all use steel in one way or another.

The importance of this market to District mills goes far beyond impressive aggregates. It is an area that has traditionally "imported" a large percentage of its steel from other sections of the country. Now, with a substantial freight advantage to offer, our mills are in a good position to whittle away that tradition.

LOOKING AHEAD

Locating a new steel plant or deciding where to increase existing capacity is an intricate process. It requires careful consideration of present realities and future possibilities. Labor supply and new technology are important—so are governmental regulations. Nearness to market and access to raw materials must be in delicate balance. There is probably no perfect site, so the one that offers the most advantages, the fewest drawbacks, is the one chosen.

We have tried to show that a happy combination of recent trends has made the Third District a better place to make steel. There is every indication that these trends will continue. The steel industry should become more important to the District and the District should become more important to the industry. The advantages the District can offer are no longer on paper. They already have been given substance by the construction of a large integrated mill. A second major company now holds land on the Delaware, though it hasn't

yet announced plans to build. Still other companies are interested.

A word of caution is appropriate, however. We can't necessarily expect a burst of new activity in the near future. New capacity is very costly. It marches in multi-million dollar steps and it moves slowly. Nevertheless, the nation's appetite for steel is growing, and existing capacity is wearing out. Many new plants will be needed—not tomorrow but over the years. When they are built, the Third District should be able to attract a significant share.

HOW IMPORTANT IS THE STEEL INDUSTRY TO THE THIRD DISTRICT?

Steel (blast furnaces and mills) is more important locally than nationally. We can produce about 2 tons of steel a year for each person in the District against a national figure of .8 tons per person.

In the District, steel accounts for:
- 6.1% of all manufacturing workers
- 7.0% of manufacturing payrolls
- 6.2% of value added by manufacture

In the nation, steel accounts for:
- 3.5% of all manufacturing workers
- 4.0% of manufacturing payrolls
- 4.4% of value added by manufacture

HOW IMPORTANT IS THE DISTRICT TO THE INDUSTRY?

We have 10.2% of the nation's total capacity.
The District is credited with 9.7% of the value added by manufacture in the industry.
We employ 13.0% of all steel workers. Their salaries amount to 12.1% of total payrolls.

HOW HAS THE DROUGHT HIT THIRD DISTRICT FARMERS?

Record-breaking drought has all but shattered this season's crop prospects for many farmers in a large part of the Philadelphia Federal Reserve District. Late-planted crops can be salvaged if the relief comes soon enough. But yields of virtually all mid-season varieties have been drastically reduced—in some cases almost to the vanishing point. Quality, too, has suffered, disqualifying some produce for top market prices. Although price trends have been somewhat more encouraging in recent weeks, this advantage has been further offset by mounting production costs

directly traceable to the drought.

Since early summer, rainfall measurements—or rather the lack of them—have been little short of startling in the drought-stricken parts of our District. These areas include acreages in 16 counties of southeastern Pennsylvania, nine in southern New Jersey, and three in Delaware. In about half of these counties the situation had become so critical by mid-August that consideration was given to having them declared disaster areas. Headlines in the press have called this drought the worst in 85 years—as long as records have been kept. And there is hardly a farmer hereabouts who would take exception to that statement.

This season's drought has gained notoriety on three counts—size of the affected area, its persistence, and its severity. The most seriously affected counties of our District are in almost the geographical center of a very dry belt extending along the eastern seaboard from Virginia to Massachusetts. From early May until late August—virtually the entire growing season—rainfall in the heart of this area averaged little better than one-third of normal. And "normal" is based on average precipitation for those months over a long period of years. Our farmers have experienced many droughts in the past that stunted or killed shallow-rooted crops on soils capable of holding little water. But this time, deep-rooted crops, even on some of our finest soils, have suffered severely.

Vegetable growers are taking the greatest losses

Mid-season vegetables produced for the fresh market and for processing all yielded poorly in the drier areas where irrigation was not available. Where fields were irrigated, like so many in the truck farming areas of southern New Jersey, yields were not too bad and quality was considerably higher than elsewhere. But it costs money to irrigate, especially so constantly as was necessary this season. The system itself is expensive to buy and install. It takes a lot of unproductive labor to move the pipes from one field to the next. And water, aside from its cost, was not always available in the places and quantities so urgently needed.

Sweet corn, tomatoes, snap beans, and peas were among the garden vegetables hardest hit by the drought. Some fields of sweet corn never matured. Abandonment of this crop seems to have been especially high in several Pennsylvania counties. Tomatoes, normally yielding upwards of eight tons to the acre, were harvested at rates as low as three tons in some areas. Snap beans and peas, in many places grown as processing crops, made a lot of vine growth, but yields were low and both crops were expensive to harvest.

Market prices for most mid-season vegetables seem to have been a little higher this year than last. Contract prices from processors also were generally satisfactory, except for asparagus—an early crop that yielded unusually well this year. But in any case the improvement in prices was not sufficient to offset the sharply reduced yields. And for some vegetable growers substandard quality took a further toll of their receipts from marketings.

Small fruits and berry crops also were hurt

Drought damage to small fruits like blueberries went beyond the stage of lowered yields and poor quality. In some commercial areas of New Jersey the bushes themselves were killed and growers have been put to the additional expense of replacing them. Cranberries, another important crop in that state, also appear to have suffered some permanent damage because of water shortages in the bogs. An accurate appraisal this early in the season is difficult, but a safe bet would call for a short crop, possibly one that will be considerably below

average this year. Other berry crops, most of which were harvested before the drought reached maximum intensity, were affected less severely, with little or no permanent damage to plantings.

Field crops were another source of disappointment

Almost everywhere in this District the small grains were good crops and the first cutting of hay left little to be desired. But that is as far as the enthusiastic comments went. Field corn yields in virtually all of our southeastern counties will be disappointing, to say the least. Much of the corn grown for grain will not make ears and is being cut for silage. Dairymen can get their food value out of the crop this way, but there is not much in it for the poultryman who was trying to reduce his feed bill. The first drought-breaking rains that came in the last week of August seem to have helped late field corn, but more will be needed if this crop is to receive lasting benefit. It is much the same story with pastures, hay, and late potatoes. These crops are not beyond salvage, although up to average yields seem improbable. Soybeans, an increasingly important crop in Delaware, have not been too heavily damaged thus far. However, the record-breaking yields harvested in 1956 are out of the question now.

Tobacco yields have been cut

Pennsylvania tobacco growers are looking for smaller yields this year and they could go below average in the main growing area of Lancaster County. Early-planted tobacco in that county is said to be in generally good shape, because the root systems were well established before the drought became critical. But current reports indicate that later plantings are in poor condition. Yields are expected to be considerably lower and quality may be off. Because Lancaster County is a "borderline" drought area, the condition of tobacco and other field crops shows considerable variation. Where there is limestone soil, sufficient water has been retained to produce relatively good crops. The northern and eastern parts of the county appear to have suffered most from the drought.

Orchard fruits generally look promising

This season's set of both peaches and apples appears to have been unusually heavy. The peach harvest is larger than last year's, and growers also are expecting an appreciable increase in the apple crop. Fruit has sized rather poorly, however, partly because of the heavy set and partly because of the dry weather. Quality has been high, except in the most acute drought areas, but when tree fruits are undersize they do not bring top prices in either the fresh market or from processors. Most fruit trees have escaped permanent injury from the drought, although there are scattered reports of losses in a few of the hardest hit areas where orchards are on stony hillsides and in the poorer soils. The generally high quality of orchard fruits may be attributed partly to the maintenance of spray schedules that in more normal years are frequently interrupted by windy, rainy weather.

Dairymen are using a lot of costly winter feed

The failure of pastures early in the season and a second cutting of hay scarcely worthwhile harvesting in the more acute drought areas forced dairymen into heavy supplementary feeding this year. Fortunately, the first crop of hay produced good yields of excellent quality. And some dairy farmers also were fortunate enough to have a fair-sized carryover from last season. In northern tier counties of Pennsylvania, dairymen are having a much

better time of it this year. They have had sufficient rain to produce good crops of both hay and field corn. Pastures have provided good grazing for most of the summer and the supply of winter feed they are accumulating is largely intact.

Milk production this season has held up well, even in the drought areas. But for those farmers short of hay, or corn for silage, or both, it has been a mighty expensive proposition. Dairymen in this Federal Reserve District have been in the process of enlarging their herds in the interest of efficiency and at the same time culling their stock to raise production and improve quality. Although this is an operation to be accomplished over time, it calls for fairly substantial outlays each year. Spending to build up herds this season is made much more difficult because of the heavy feed bills so many are facing. Moreover, this year, as in 1956, there is a continuing trend toward modernization of dairy barns and their equipment, so the proceeds of the milk check may have to be spread still further.

Poultry markets offer more encouragement

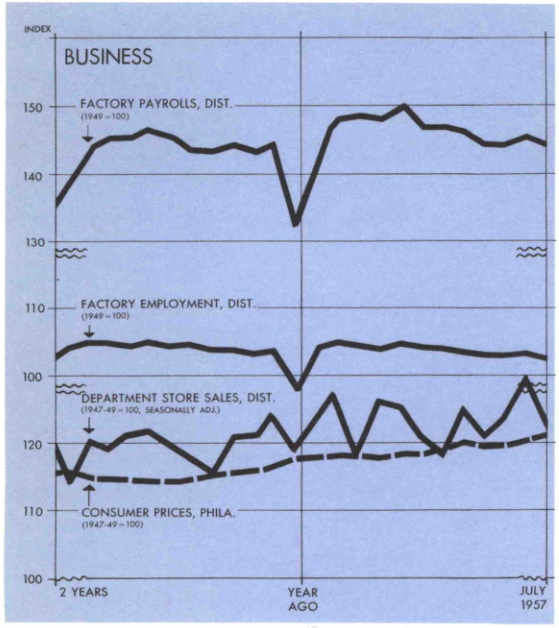
Overproduction by poultry farmers seems less of a problem than last year, or even a few months ago. Many of our poultrymen reduced the size of their flocks because of the low prices paid for both meat and eggs in 1956 and over much of the current year. Since June, however, demand has strengthened considerably. Broilers now are bringing a better return to growers. Egg prices are up from near-ruinous levels prevailing this spring and the trend still seems to be upward. Some poultrymen will tell you that the present situation still leaves much to be desired—especially the grower who had hoped to reduce his feed bill by producing some corn. But most poultrymen are encouraged by this summer's price trends. Their only reservations concern the magnitude of seasonal declines this fall and the very real possibility of higher feed prices this winter.

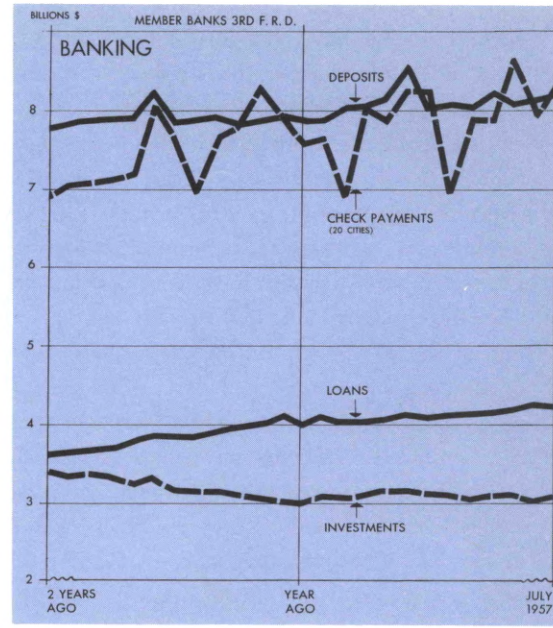
Farm cash income will be off sharply

Cash receipts from the marketing of crops and livestock products in the Philadelphia Federal Reserve District were a bare 1 per cent above their year-ago level in the six months ended June. And early 1956 was not a period of high farm income. All of the increase in this period was in receipts from crops. The livestock products component was down 2 per cent, owing in part to extremely low prices paid for eggs. Coming months will reflect severe drought-inflicted losses to crops and it is improbable that expected increases in cash from marketings of livestock and livestock products will be sufficient to maintain any sort of a favorable income picture.

Some of our farmers will make a little money this year. Prospects look best for the dairymen, poultrymen, and fruit growers. In the hardest hit drought areas of this District, those farmers who have not measurably increased their indebtedness may be considered relatively well off. But for others whose cash crops never matured or paid little return on the cost of production, the 1957 season must be written off as a miserable failure.

FOR THE RECORD...





SUMMARY

	Third Federal Reserve District			United States		
	Per cent change			Per cent change		
	July 1957 from		7 mos. 1957 from year ago	July 1957 from		7 mos. 1957 from year ago
	mo. ago	year ago		mo. ago	year ago	
OUTPUT						
Manufacturing production	− 2	+ 2	−3	− 6	+ 6	+2
Construction contracts*						
Coal mining	−24	+25	−1	−25	+ 6	−1
EMPLOYMENT AND INCOME						
Factory employment (Total)	− 1	+ 4	0	− 1	0	+1
Factory wage income	− 1	+ 9	+2			
TRADE**						
Department store sales	− 6	+ 3	+3	+ 4	+ 2	+2
Department store stocks	0	+ 5		0	+ 4	
BANKING (All member banks)						
Deposits	+ 1	+ 5	+3	0	+ 4	+3
Loans	0	+ 6	+5	− 1	+ 6	+7
Investments	+ 2	+ 3	0	+ 1	0	−3
U.S. Govt. securities	+ 3	+ 3	0	+ 2	− 1	−4
Other	− 1	+ 1	−1	0	+ 2	−1
Check payments	+ 4†	+10†	+4†	+ 4	+11	+7
PRICES						
Wholesale				+ 1	+ 4	+3
Consumer	+ 1‡	+ 3‡	+3‡	0	+ 3	+4

*Based on 3-month moving averages.
**Adjusted for seasonal variation.
†20 Cities
‡Philadelphia

LOCAL CHANGES

	Factory*				Department Store				Check Payments	
	Employment		Payrolls		Sales		Stocks			
	Per cent change July 1957 from		Per cent change July 1957 from		Per cent change July 1957 from		Per cent change July 1957 from		Per cent change July 1957 from	
	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago
Allentown	−4	+14	0	+27					+ 9	+11
Harrisburg	0	+18	+3	+37					+12	+11
Lancaster	−1	− 2	−2	+ 1	−21	0	− 3	+ 4	+ 2	+ 4
Philadelphia	0	+ 5	0	+10	−30	+ 1	− 5	+ 7	+ 2	+ 8
Reading	0	0	−2	+ 1	−22	+21	−10	+16	+ 1	− 2
Scranton	−1	− 2	−2	+ 1	−28	0	0	− 2	+ 7	+ 6
Trenton	−1	+ 5	0	+ 2	−27	+ 3	−10	+ 3	+18	+32
Wilkes-Barre	−2	+ 1	−2	+ 6	−19	+ 1	− 2	+ 1	+ 3	+10
Wilmington	−1	+ 5	0	+15	−24	+ 8	− 2	+10	+ 2	+19
York	−2	− 6	−2	− 4	−16	+ 2	− 4	− 7	+ 4	+10

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