

The early days: In 1895, five years after the Sparrows Point plant opened, foundry workers posed for a Baltimore photographer. In the foundry, molten metal was cast into parts for plant machinery. The Point's various steelmaking facilities were then spread over 400 acres; more acreage was created by landfill.

The Rise and Decline of Big Steel

“What is steel?” author John Gunther asked people in Pittsburgh during the late 1940s. “America!” was often the proud answer he got back. Steel output was still regarded as the prime measure of a nation’s economic strength. And, after World War II, the United States was the world’s biggest steelmaker. In Pittsburgh, in Chicago, in Gary, in Seattle, in Birmingham, in Bethlehem, Pennsylvania, it seemed as though the industry and its workers would prosper forever just by producing more. But by the late 1970s, as demand shrank and imports increased, the huge mills began shutting down. What now seemed to matter to the world was supremacy in computers, semi-conductors, and other high technology. Here, Mark Reutter traces the rise and decline of Big Steel; he focuses on the Bethlehem Steel Corporation and its Sparrows Point plant, near Baltimore, which was, for a time, the largest steel mill in the world.

by Mark Reutter

I. MISTER SCHWAB

“Ladies and gentlemen, I am here for a very brief and simple duty, a very delightful duty, that of welcoming Mr. Schwab to Baltimore.”

In the audience before James H. Preston, mayor of Baltimore, were scores of politicians, businessmen, and other notables who had gathered at the Belvedere Hotel for a “Dinner of Welcome Tendered to Mr. Schwab by the City of Baltimore.” The date was November 21, 1916, 10 months after Charles M. Schwab’s Bethlehem Steel Corporation bought the Pennsylvania Steel Corporation and its plant on Sparrows Point, a dozen miles southeast of Baltimore, on the Chesapeake Bay.

As his listeners quieted, the mayor launched into a grandiloquent

tribute. Finally, he presented Schwab with a gold humidor, a "minor token of the esteem, of the gratitude, and, may I say, of the affection that Baltimore feels for you." He continued: "You are making a contribution not only to Maryland and Baltimore, but also to the greatness of our country, to American manhood, to American citizenship, to the broad humanitarianism of mankind, in which you exemplify in yourself the highest ideals."

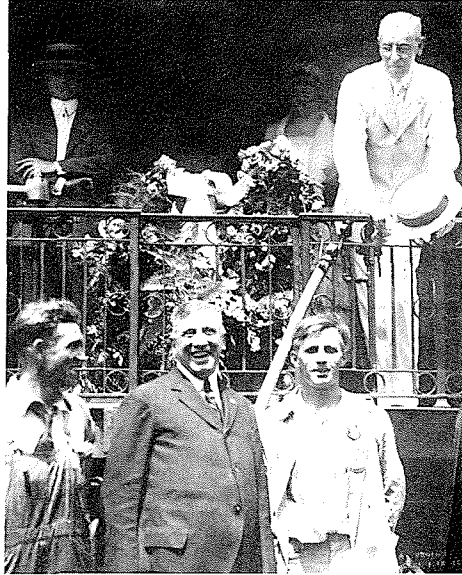
At 54, Schwab, chairman of Bethlehem Steel, was accustomed to accolades. For years, the popular press had been repeating the phenomenal story of the rise of this Pennsylvania country boy from a \$1-a-day laborer in a Pittsburgh steel mill to the presidency of Carnegie Steel at age 35 and then, a few years later, the presidency of U.S. Steel, the biggest corporation in the world. Now, he was molding Bethlehem into U.S. Steel's chief competitor. But when he took the podium, Charlie Schwab, true to his reputation as a master actor, tossed aside his prepared speech to tell his listeners "what is in my heart tonight."

A 'Marvelous Midas'

"When I first entered the steel business 35 years ago, the whole country consumed scarcely one million tons of steel. When the [U.S.] Steel Corporation was formed in 1901, the whole country only consumed 12 million. We then felt that we had reached the zenith of production. You will not be surprised, I am sure, when I tell you that this year the United States will produce about 40 million tons of steel. Now I don't think that is the zenith, or anywhere near the zenith. I think we are going onward and upward, and that this country is destined to be the greatest manufacturer in the world of iron and steel, as great as all the other countries put together in the years to come."

Schwab raised his hands to hush the audience. "People will say, 'Where is it going? What is going to be done with it?'" Of course, he said, the railroads, long the industry's chief customer, would always need rails, railroad cars, and other steel products. But Schwab foresaw a growing world appetite for other commercial steels—plate steel for shipbuilding and construction, tin plate for canners and meat processors, bar and sheet steel for the young auto industry, and rod steel for bedsprings, nails, and spikes. Just a few years earlier, he had virtually staked his company on the so-called Bethlehem beam. Unlike old-fashioned steel

Mark Reutter, 37, a former Wilson Center Fellow, is a writer in Chicago who specializes in business and social history. Born in New York City, he received a B.A. from Johns Hopkins University (1972) and an M.A. from Columbia University's School of Journalism (1973). He was a reporter at the Baltimore Sun from 1973 to 1978. Copyright © 1988 by Mark Reutter. This essay is drawn from his forthcoming book, Sparrows Point: Making Steel—The Rise and Ruin of American Industrial Might, to be published by Summit Books. Printed by permission.



In August 1918, President Woodrow Wilson looks on as Charles Schwab, his wartime "shipbuilding czar," congratulates two champion riveters at the Hog Island shipyard, near Philadelphia.

beams, which were riveted together, the lighter, stronger Bethlehem beam was cast in one piece. Thanks to Schwab's salesmanship, it was catching on among architects and builders.

To capture the markets of the future, Schwab cautioned, Bethlehem had to achieve the lowest production costs in the industry. This was where Sparrows Point fit in. At landlocked Bethlehem, Pennsylvania, where the company's main plant was located, iron ore had to be delivered by rail. At Sparrows Point, on the Chesapeake, the rail charge was eliminated. Ore could be shipped directly from company-owned mines in Cuba to the Point's piers. Overall, the tidewater location of Sparrows Point could save the company \$2 in manufacturing costs per ton of finished steel. As U.S. Steel and other Midwestern competitors gradually exhausted domestic supplies of iron ore, Sparrows Point would increasingly tip the balance in favor of Bethlehem.

For these reasons, Schwab said, he had decided to build Sparrows Point into Bethlehem's principal plant. "Now, boys," he told the audience, "I am going to tell you something about what we contemplate here in Baltimore—WE CONTEMPLATE HERE THE LARGEST STEEL PLANT IN THE UNITED STATES!"

All of Baltimore was excited. "A MARVELOUS MIDAS," proclaimed a headline in the *Baltimore American*. Baltimoreans did not dwell upon the sources of Bethlehem's largesse. In fact, during 1916, while President Woodrow Wilson was trying to keep America out of World War I, Schwab's company had become the world's largest manufacturer of steel armaments. The "American Krupp" was inundated with

orders from Britain, France, and Russia—for field artillery and naval guns, shells, armor plate, even submarines.* Its net earnings soared by 149 percent, from some \$25 million in 1915 to \$62 million. At Sparrows Point, the open-hearth furnaces supplied billets of special nickel-chrome steel for the busy munitions shops in Bethlehem, which turned out 25,000 artillery shells every day.

In 1917, the year America entered the war, Sparrows Point underwent the greatest transformation in its history. Bulkheads were rammed into the ground 2,367 feet beyond the south and west shores of the Point, and immense loads of earth, stone, slag, and gravel were dumped in the space between. When the fill had settled out, Sparrows Point was 100 acres larger. Work promptly began on new docking facilities to accommodate the company's growing fleet of ore steamers.

Working the 'Swing Shift'

While the Point was expanded, tremendous activity was going on within. On the cattail-fringed flatlands, gangs of construction workers could be seen putting massive concrete footings in place and piecing together the skeletons of new buildings.

In July 1917, a sheet and tin plate mill—the only one of its kind east of Pittsburgh—opened to supply tin plate for the canning of Army rations and other supplies. In September, a new 110-inch heavy plate mill went into operation, its output absorbed by orders for merchant ships—many of them built at the adjacent Sparrows Point shipyards.

Sparrows Point ran around the clock. Until 1923, the standard work schedule was a week of 11-hour day shifts followed by a week of 13-hour night shifts.† During the changeover every Sunday, the night shift worked through the following day. Thus, most of the Sparrows Point hands worked a grueling 24-hour "swing shift" once every other week. There were no paid vacations and only two (unpaid) holidays: Christmas Day and the Fourth of July.

Most of Sparrows Points' skilled and semiskilled workers had migrated East from the traditional steel citadels around Pittsburgh and eastern Ohio. Because jobs in steel were highly specialized and widely dispersed, a machinist was more likely to be found in the hinterland than in Baltimore. Bethlehem did not hesitate to hire immigrants for skilled jobs—one Finnish rolling crew worked under an Italian foreman named

*Schwab's 1914 deal with Great Britain to build 20 submarines probably violated U.S. neutrality laws. When word of the contract leaked out, Schwab agreed, under pressure from the Wilson administration, to cancel it. But Bethlehem covertly fabricated the submarines' parts in various U.S. plants and assembled them in Canada—a secret that Schwab carried to his grave.

†Under pressure from President Warren G. Harding, Schwab and other steel barons grudgingly agreed in 1923 to an eight-hour day and a six-day workweek "as soon as the labor supply permitted." By the end of the 1920s, while the "swing shift" was gone, one-fourth of the Sparrows Point labor force still worked seven days a week.

Louie—but native-born whites tended to predominate at the Point. Sparrows Point also had the largest contingent of black steelworkers in the nation next to U.S. Steel's Birmingham, Alabama, plant. Most of the plant's blacks worked as common laborers. A few held semiskilled jobs as "riggers," "skull knockers," or "track spikers."

As the U.S. war effort grew, so did the reputation of Charlie Schwab. He was a highly sought after speaker at Liberty Bond rallies; the World Conference of Salesmen named him Salesman of the Year. In April 1918, President Wilson summoned him to serve as director-general of the U.S. Emergency Fleet Corporation and revive the nation's faltering endeavor to "build a bridge to France."

Schwab rapidly won national acclaim as the "shipbuilding czar." He quickly increased the nation's output of troop transports and cargo ships, but it was his barnstorming stump style that delighted journalists, shipworkers, and the general public.

Up and down the Atlantic Seaboard, along the Gulf Coast, and in the Pacific yards, Schwab delivered his rousing beat-the-Kaiser talk to all and sundry. In one celebrated incident, he addressed a gathering of workers at a Seattle shipyard known to be a stronghold of the radical Industrial Workers of the World (the "Wobblies"). Expecting a chilly reception, Schwab readied an opening line to disarm his audience. "Now, boys," he began, "I'm a very rich man . . ."

The startled men laughed and applauded, and Schwab went on to make his speech. When he finished, they offered to make him an honorary Wobbly. He accepted.

Moving Up

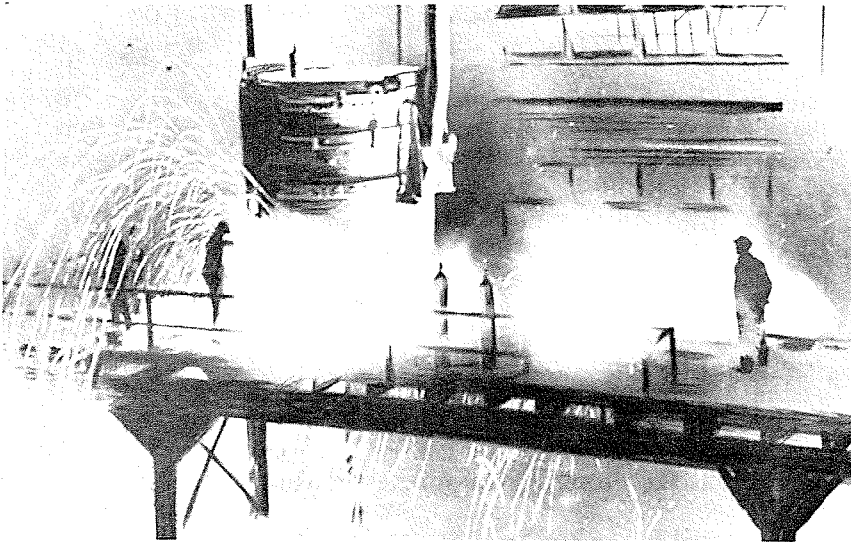
The tour reached its climax on July 4, 1918, when Schwab presided from San Francisco over a gala launching of 95 ships nationwide. There were speeches and prayers and brass bands playing Sousa marches. Workers cheered the shipbuilding czar as if he were a combat hero. The *New York Times* proclaimed Schwab the "Field Marshal of Industry," saying, "No vocabulary could do justice to the zeal, energy, driving power, magnetism, and inevitable success of this remarkable man."

The war was a boon to Schwab's company and the American steel industry; in 1914, when the first shots were fired, the industry produced some 24 million tons of steel. By 1918, when the armistice was signed, output had been nearly doubled. Bethlehem's balance sheets showed enormous profits; the company's hoard of cash and securities had grown eightfold, to \$47.8 million.

With these riches in hand, Charlie Schwab was ready to embark on an ambitious new campaign of postwar expansion. One of his first moves was to secure the basic supplies needed to keep Bethlehem growing. Five hundred pounds of limestone, one-and-a-half tons of coal, and two tons of iron ore were needed to make a ton of steel. Schwab acquired the

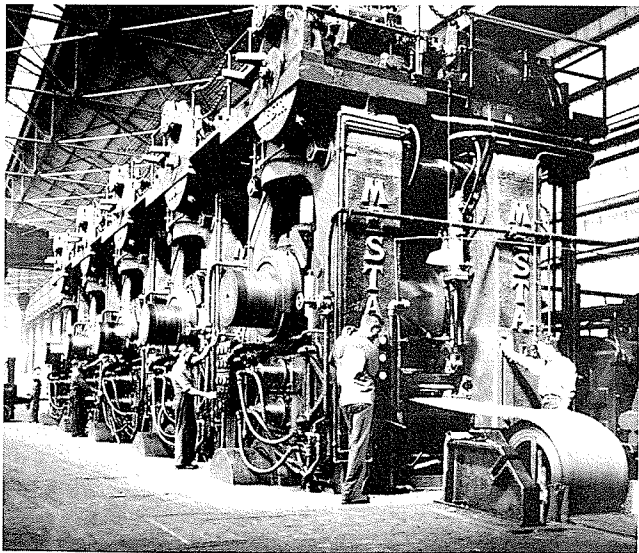
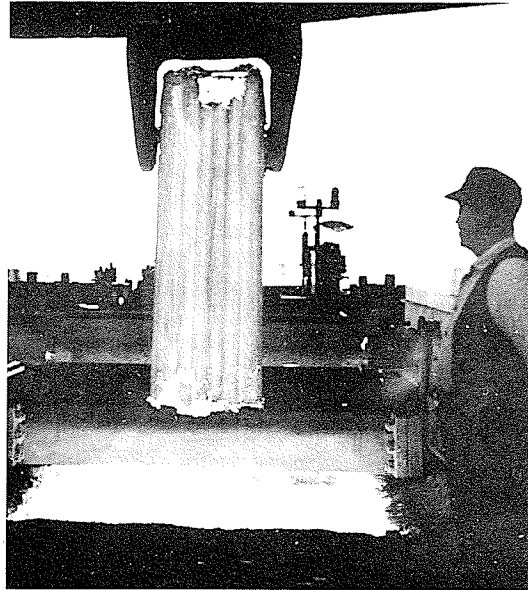


Workmen on the "casting floor" scrape excess hardened metal from the blast furnace.



A giant ladle carries molten steel from an open-hearth furnace to the ingot molds.

In the "soaking pits" (actually furnaces), steel ingots are reheated to 2200 degrees F for rolling.



A "cold-reducing" mill (built in 1936) turns out strip metal at 1,200 feet per minute. After being coated with tin, the steel will be shipped out to can makers.

Hanover limestone quarries in southeastern Pennsylvania (65 miles from Sparrows Point), as well as 46,000 acres of West Virginia coal country. Because U.S. Steel controlled the richest domestic supplies of iron ore (the Mesabi Range, near Duluth, Minnesota), Schwab stuck to his strategy of supplying Sparrows Point from Latin America. Now, he added the massive El Tofo open-pit mine, on a mountaintop in Chile, to Bethlehem's existing ore assets in Cuba.

By all statistical measures, Bethlehem was moving up the ladder while giant U.S. Steel was slowly descending. Once claiming 68 percent of the nation's steel capacity, U.S. Steel was down to 45 percent by the early 1920s. Still the world's largest corporation, with mills concentrated around Pittsburgh and Chicago, it had been weakened by its slowness to exploit new technology. Moreover, Chairman Elbert H. Gary had decided against buying up other steelmakers, for fear of provoking Washington antitrust prosecutors.

Schwab operated under no such inhibitions. In 1922, Bethlehem acquired two large steelmakers: Lackawanna Steel (based in Buffalo, New York) and Midvale Steel & Ordnance (based in Johnstown, Pennsylvania). Bethlehem now owned every major steel plant east of Pittsburgh, and claimed 15 percent of the nation's steel capacity. In terms of assets, this once-modest manufacturer had become the nation's third largest corporation, behind U.S. Steel and Standard Oil of New Jersey.

As Bethlehem grew, so did the wealth of its chairman and chief stockholder. During the war years, Schwab's personal holdings of Bethlehem stock had yielded some \$20 million in dividends, and he still measured his income in seven figures during the 1920s.

Building a Monument

Ever since making his first millions at Carnegie, Schwab had pursued the trappings of wealth with a passion. His first extravagance had been a 75-room mansion on Riverside Drive in Manhattan. Occupying a full city block, with a price tag of \$3.5 million (\$44 million in today's dollars), "On the Hudson" was even more magnificent than the *palazzos* the Astors and other wealthy families had built on Fifth Avenue a generation earlier. Its amenities included an art gallery filled with Old Masters, a full-size gymnasium, and a basement swimming pool set among columns of Tuscan marble. "Ostentation, it was generally admitted, was part of the Schwab scheme of things," remarked Lucius Beebe in his 1966 chronicle of *The Big Spenders*.

But the Riverside Drive mansion paled in comparison to the country estate Schwab completed (after the war) on the hills that surrounded his boyhood home in Loretto, Pennsylvania. It was here that his immigrant German grandparents had settled 80 years before, and where his father had worked as a mailman and proprietor of the local stable.

Schwab's estate, "Immergrun" ("Evergreen" in German), was a

monument to the success of Bethlehem Steel. The centerpiece of the 1,000-acre retreat was a three-story Renaissance castle, with 44 ornately decorated rooms. On a whim, Schwab ordered up a life-size replica of a French farming village spread over 66 acres. There was a private golf course; a large artificial waterfall; an open-air theater; and acres upon acres of formal gardens. A staff of 70 maintained the house and grounds.

Schwab and his wife, Rana, lived at Immergrun only during the summer months; the rest of the year they spent on Riverside Drive. Or rather Rana did, for Schwab was perpetually on the move. They had married years before his unexpected success, and Rana, daughter of a boarding-house keeper, was never comfortable with her husband's zest for high living. She was childless, and lived in virtual seclusion. Rana looked the other way during Schwab's affairs with other women. She seldom joined him on his annual trips to Europe.

Insiders and Outsiders

There, he indulged another personal vice. Whether he was at the casino in Monte Carlo or at the New York Whist Club, Schwab could seldom resist a bet. "I shall go broke for I love to gamble," he once confided to a friend.

Although he was generous to friends and relatives, Schwab rejected the Gospel of Wealth propounded by his business mentor, Andrew Carnegie, who held that the rich had an obligation to devote much of their wealth to philanthropy. "I disagreed with Carnegie's ideas on how best to distribute his wealth," Schwab told a journalist. "I spent mine! Spending creates more wealth for everybody. . . . I believe that let alone, wealth will distribute itself."

Americans enjoyed the Steel King's excesses. "Smiling Charlie" always had something pithy to say to reporters, and he was often quoted, along with Walter Chrysler and Henry Ford, as a spokesman for American business. In *Colliers* and *National Magazine*, readers were treated to admiring portraits of "The World's Greatest Salesman and Business Personality." Even the normally iconoclastic *American Mercury*, edited by Baltimore's own H. L. Mencken, joined the chorus. "True enough," the *Mercury* noted, Schwab and his company had profited greatly from the war, but the chairman had only been seeing to the interests of his stockholders: Since the war, "he has left no doubt as to his real attitude toward these lamentable proceedings." The *Mercury* continued: "Parents with tears of hopefulness in their eyes have been known to recite the Schwab saga to their children, and awed biographers have written about it a thousand times in newspapers and magazines."

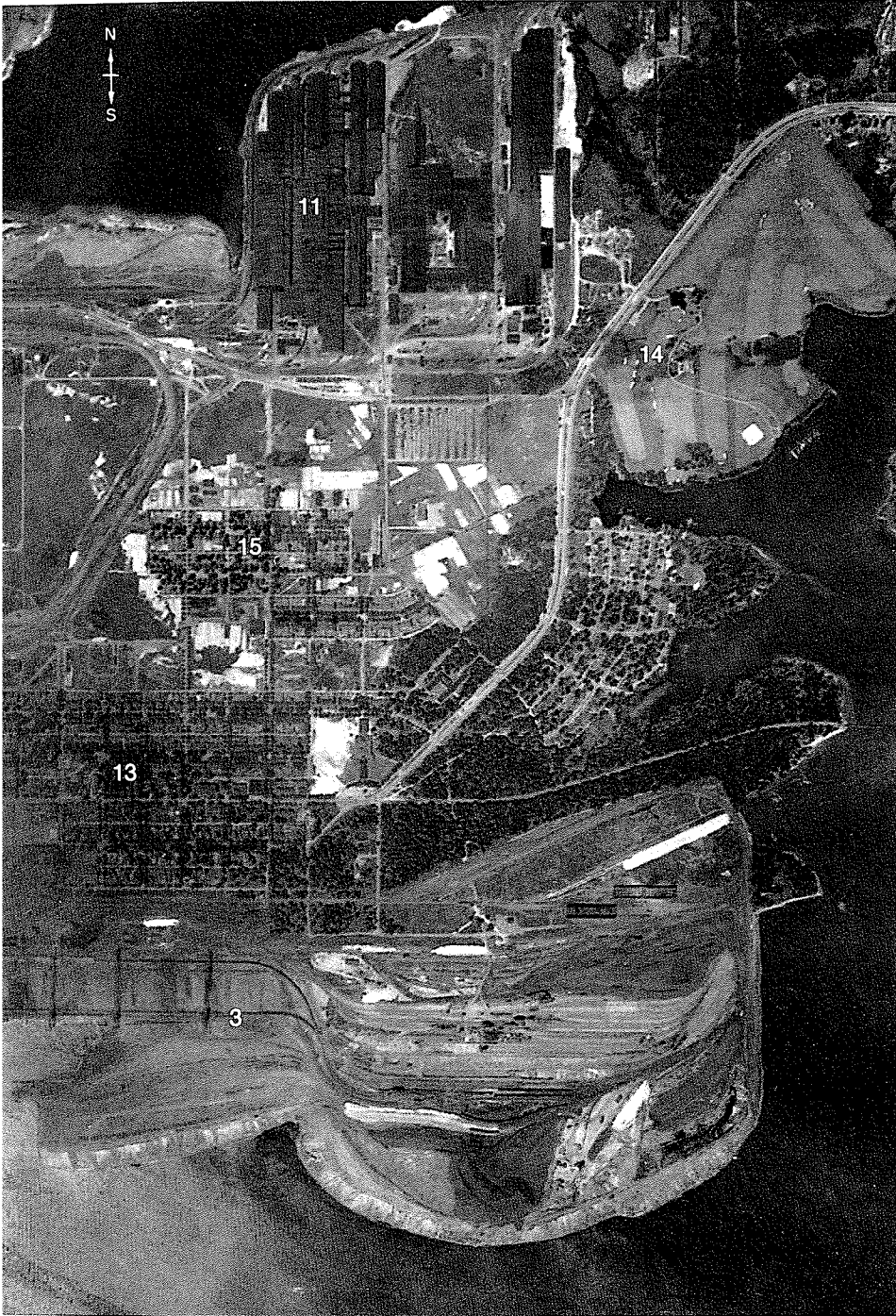
Schwab was not the only one to benefit from Bethlehem's good fortune. At company headquarters in Bethlehem, the chairman created a supreme command of 16 men. Long before, he had made a number of

HOW SPARROWS POINT WORKED

The Sparrows Point plant, shown here in the 1940s, worked like a huge assembly line, connected by rail lines. Arriving by barge, coal went from the Coal-Handling Plant (1) to the Coke Ovens (2). The coke was combined with iron ore from the massive Storage Yards (3) and limestone (delivered by rail) in the Blast Furnaces (4) to make pig iron. In the Open-Hearth Furnaces (5), the pig iron was melted and combined with alloys and other materials to make steel ingots. Delivered to the Primary Rolling Mills (6), the ingots were reheated and rolled into blooms, bars, and billets. These semifinished forms were shipped to various finishing mills: the Rail Mill (7); the Plate Mill (8); the Wire, Rod, and Nail Mill (9); the Pipe Mill (10); and the Strip, Sheet, and Tin Plate Mills (11). Some of the finished products were returned to the piers for shipment to the West Coast and overseas; most traveled by railroad (12) to various customers in the East. The "company town" (13) was home to as many as 5,500 people—employees and their families. It contained a company store, schools, seven churches, and a country club (14). The east-west streets were lettered, with A through C Streets constituting white-collar "Bosses Row." D Street was the main commercial street. Foremen and workers lived in modest row houses on E and F Streets; blacks were segregated in a separate enclave (15).



BIG STEEL



decisions with far-reaching consequences. He made promotion from within a cornerstone of company policy; few men from other companies joined Bethlehem's top ranks. He disdained college-educated managers. "Most talk about 'super-genius' in business is nonsense," he said in his advice book, *Succeeding With What You Have* (1917). "I have found that when 'stars' drop out, their departments seldom suffer."

Other Schwab tenets reinforced management's insularity. Top Bethlehem executives were expected to live in Bethlehem, even though their chairman did not. They were forbidden to engage in any outside business or political activities unless directed to do so for the greater good of Bethlehem Steel. Schwab even discouraged theater-going, which he scorned for taking men away from "study that will add to their business knowledge."

The Bonus System

Significantly, most of the 16 top executives also served on the company's board of directors. Most companies as large as Schwab's reserved seats for major stockholders and other "outside" directors to help review executive decisions and set general strategy. Not at Bethlehem. There, management reviewed management decisions.

"Always More Production" was the company's slogan, and Schwab prized executives who could make a little bit more out of a little bit less. He believed in becoming Number One not through technological innovation but through incremental improvements in costs and output.

The moment of truth for the "boys," as he called his top executives, was on the third of each month. On that day, Chairman Schwab found on his desk a report from each of them that itemized the monthly production, costs, and profits for the units under their jurisdiction. After thoroughly scrutinizing the numbers, Schwab performed his most sacred duty—the calculation of the monthly bonuses.

The salaries of the top men at Bethlehem seldom exceeded \$100 a week. But their bonus envelopes bulged. Although nobody—including Bethlehem's shareholders—knew at the time how much Schwab's "boys" received in bonuses, they were the best-paid executives in America. In 1925, Schwab divided \$1.7 million (about \$11 million in today's dollars) among them. Schwab himself received no bonuses, deriving most of his income from dividends on his Bethlehem stock.

The 1920s proved to be the perfect era for the organization that Schwab built. Bethlehem had better raw material resources than its competitors; it could deliver steel at the lowest prices in the Northeast; it was better financed than its rivals; and it was constantly searching for new acquisitions. Thanks to rapidly expanding markets for autos, tinned foods, and other consumer goods that created a growing demand for steel, Schwab's "bigger is better" philosophy worked well. The massive tin plate mill built during World War I now turned out enough product—

shipped to canners as far away as Hawaii, Japan, and Argentina—to make two billion cans a year. Closer to home, a new Chevrolet assembly plant in East Baltimore consumed sheet metal and other products, while construction of the Camden-Philadelphia Bridge and other structures boosted sales of steel plate and girders.

But it was in the realm of factory productivity that Schwab again demonstrated his Midas touch. Schwab's faith in the common man's urge to make money (and to work harder to make more) led him to pay his workers in much the same fashion as he paid his executives—under a complicated bonus system. The system was unique in the steel trade.

How unique may be observed by comparing Schwab's plan with the policies of Frederick Wood, the founder of Sparrows Point. To Wood, wages were simply one of the costs of production, not a spur to lower those costs. A New England-born Yankee, he also worried that workmen with too much money in their pockets would become slackers or drunkards. Once widespread, such views lost favor among businessmen during the early 20th century: The Yankee ethic of saving and self-denial no longer appealed to executives who hoped that increasingly affluent workers would become buyers of industrial America's products.

In Schwab's view, moreover, money did not weaken, but rather reinforced the famous American work ethic. At Sparrows Point, *average* real wages increased by a modest seven percent during the first decade under Schwab, but, because of the bonus system, extremely hard-working employees were able to make much greater gains.

Fire, Smoke, and Men

Schwab had little use for the vastly influential concept of "scientific management" advanced by Frederick W. Taylor. A former Bethlehem employee, Taylor advocated "time and motion" studies in order to determine optimal ways for workmen to do their jobs. He might, for example, prescribe the exact sequence of body movements for shoveling coal into a furnace. When Schwab assumed control of Bethlehem in 1901, he threw out Taylor's procedures. He said there was no need for slide-rule and stop-watch men—"supernumeraries," he called them. Schwab's policy was simple: He did not care how a job was done, only that it was completed at the lowest possible cost.

Heading to Europe in February 1923 for his yearly restorative at the roulette tables of Monte Carlo, Chairman Schwab had a long chat with Clarence Barron. As diarist of the American Dream (he owned the *Wall Street Journal*), Barron sought the answer to a question that was then on the minds of many of his newspaper's readers: What accounted for Bethlehem's great success?

The steelman gave several answers, but at last he came to unions. Recalling that he had been summoned by Andrew Carnegie to help break the famous 1892 strike by the Amalgamated Association of Iron, Steel,

and Tin Workers at Carnegie's Homestead, Pennsylvania, plant, he said: "Since that day I have never had labor unions in any of my concerns. We make our own labor unions."

The Bethlehem Plan, as Schwab's scheme was called, was a creature of World War I. In 1918, the U.S. War Labor Board had ordered the company to allow its employees to organize unions. Instead, Bethlehem created a company union. Discussions of wages, hours, working conditions, and all other aspects of plant life were channeled through 13 worker-management advisory committees. They passed their "advice" on to top management; they were not negotiating bodies and they could not call strikes.

During the 1920s, however, the skilled hands at Sparrows Point (and other Bethlehem plants) crossed the threshold of the middle class. They could afford that Easy Electric washing machine that sold for only \$189.99 at the company store. As they saw it, they were "making money," and therefore had little incentive to buck the system.

Only at Sparrows Point could one appreciate the great expansion in capacity that Chairman Schwab and his associates had achieved as the decade drew to a close.

Seen from the Chesapeake, the works were shrouded by their own effluvia of smoke, visible for miles around. The port of entry was a mighty agglomeration of materials and equipment: cranes that scooped the iron ore out of block-long steamers from Cuba and Chile; a row of six blast furnaces capable of reducing the mountainous heaps of ore (plus piles of coke and limestone) to 3,500 tons of pig iron every day; 17 open-hearth furnaces and three aging Bessemer converters that refined the pig iron into thousands of tons of liquid steel; and acres of barn-red sheds where the metal was rolled into sheets, rods, and other forms.

Black Friday

Twelve years after Bethlehem's takeover of Sparrows Point, the basic steelmaking facilities had been totally rebuilt and finishing capacity pushed to record levels. No other major U.S. mill had expanded so fast.

Amid all the physical manifestations of the Industrial Age—fire, heat, smoke, steam, noise—a horde of humanity tramped three times every day through the clockhouse. At shift changes, one encountered muscular laborers and pencil-thin millwrights, blacks and whites, young and old, all coated with grimy reddish specks of ore dust. By the end of the 1920s, daily employment had reached 18,000, or 6,000 more than at the peak of World War I. If one counted wives, children, and other dependents, the lives of no less than 80,000 people in the Baltimore area were tied to Sparrows Point.

It seemed inconceivable that such prosperity could end, so when the stock market collapsed in October 1929, Schwab, like many other businessmen (and not a few politicians), dismissed it as only a "temporary"

adjustment. Sparrows Point and other company mills continued to run at near-capacity. "We have established such concentrated industrial strength in this country that we can all proceed with a high degree of rational self-confidence during 1930," he assured the Illinois Manufacturers' Association on December 10, 1929. "Never before has business been as firmly entrenched for prosperity as it is today."

Indeed, Charlie Schwab was again on the prowl, ready to clinch the title of Master Builder. His target: the Number Three steelmaker, Youngstown Sheet & Tube. The planned merger would push Schwab's company over the \$1 billion mark in assets. It never happened.

Praying at the Cathedral

The impact of the Depression could no longer be ignored. By June 1931, Schwab had ordered the complete shutdown of the Sparrows Point rail mill. Orders for structural steel, sheet metal, tin plate, and other products virtually ceased. America's economy was gravely ill.

By August 1931, Bethlehem's mills were limping along at only 32 percent of capacity. The company's president, Eugene G. Grace, admitted to newspapermen in New York that he had no idea how to reverse the losses. "Let us adjourn this meeting and go uptown to the Cathedral and pray," he said.

At Sparrows Point, thousands of workers were laid off, and the 12,000 who remained on the payroll took a 10 percent pay cut (to 45 cents an hour). Hours were vastly reduced. Charlie Parrish, a black steelworker, remembers his hours dropping from 70 to 15 per week in 1931—only enough to pay him \$13.50 every other week. "The men here would go to the other factories thinkin' that somebody may be hiring again," he later recalled, "but there was nothing in it." He and his wife, Alice, were happy to receive handouts of flour from local churches.

With dismal speed, the advances of the 1920s were being reversed. Since January 1, 1930, the company had spent \$47 million of its cash hoard on additions to capacity, mostly at Sparrows Point and Lackawanna. These expenditures came to haunt management. Because Schwab and his lieutenants had based their plans on an assumption of ever-expanding markets, the new facilities did not incorporate any major cost-saving devices. In fact, the jumbo No. 3 open-hearth shop that had been built at Sparrows Point in 1930 proved too expensive to operate. It remained idle throughout most of the Depression.

Like most of their counterparts in other companies, Bethlehem executives had obsessively sought incremental reductions in costs, brushing aside new technologies that could have improved efficiency. (Indeed, Bethlehem waited until 1936 to invest in a revolutionary mechanized "hot-strip" mill, a decade *after* some of its competitors had done so.) As *Fortune* pointed out, steel traveled as much as two miles in the making at the big plants: "This enormous mechanism must go into pro-

duction no matter how small a daily total of orders. It is like picking up a sledge hammer to drive home a tack."

In short, the strategy of "bigger is better," seemingly invincible in boom times, was now sapping Schwab's company of its ability to adjust to shrinking markets.

In October 1931, Bethlehem announced that, due to "changed conditions," it was dropping its pursuit of Youngstown Sheet & Tube. The legal battles had badly tarnished Bethlehem's image. Court proceedings had revealed for the first time how generous Schwab was to his "boys." Grace, for example, had been awarded a \$1.6 million bonus in 1929. "Mr. Grace, it develops, receives as much as Douglas Fairbanks and Charlie Chaplin," observed the editors of the *New York Times*.

Broken Promises

After nine consecutive quarters of red ink, the company finally turned a modest profit again during the last quarter of 1933, thanks to President Franklin D. Roosevelt's New Deal. Under the president's National Recovery Administration (NRA), the steelmakers were allowed to divide up regional markets among themselves and fix prices; in return, they were expected to recognize their employees' right to form their own unions. (When the Supreme Court struck down the NRA in the *Schechter* decision of 1935, Congress passed the Wagner Act, which guaranteed the right to collective bargaining.)

On July 6, 1936, John L. Lewis, head of the United Mine Workers and the new Committee for Industrial Organization (CIO), went on national radio to "call upon the workers in the iron and steel industry who are listening to me tonight to throw off their shackles of servitude and join the union of their industry." The CIO's new Steel Workers' Organizing Committee (SWOC), muscling aside the old and ineffective Amalgamated union leadership, demanded a 62½-cent hourly wage, a 40-hour workweek, and time-and-a-half for overtime.

The Steelworkers waged a long and bitter struggle for recognition. In March 1937, they won an unexpected victory when U.S. Steel capitulated. Bethlehem and the other big steelmakers matched the terms of the U.S. Steel contract, but refused to recognize the union. During a strike against Republic, Inland, and Youngstown in May, police shot and killed 10 striking Republic workers in a South Chicago clash. The strike spread to Bethlehem's Johnstown works in June, when 8,000 workers walked out. Returning from a vacation in Germany, Schwab dismissed the Johnstown strike as "a phase," and said it was hurting the nation's prospects for economic recovery.

But inside Sparrows Point and other mills, support for the union grew. Meanwhile, the Steelworkers shifted the battlefield to the government hearing room. In dozens of filings with the new National Labor Relations Board, labor lawyers accused Bethlehem and its allies of firing

union members, employing Pinkerton "goons," and a host of other illegal acts. The Board ultimately ruled against Bethlehem and, in September 1941, representation elections were held at Sparrows Point. The new union won by a margin of better than two-to-one.

Charlie Schwab never seemed to regret either his bigger-is-better corporate strategy or his opposition to unions. He did not live to see the Steelworkers triumph. At the age of 77, in August 1939, just before the outbreak of World War II, he was stricken by a nearly fatal heart attack while staying at the Savoy in London. Returning to New York aboard the S.S. *Washington*, he was carried ashore on a stretcher. A second heart attack killed him on September 19. His wife, Rana, had died in January.

Over his lifetime Schwab had accumulated a fortune estimated at \$50 million to \$200 million; in an obituary, the *New York Times* lauded his life as "a romance" that epitomized the age of "American opportunity." It was only after his death that stunned estate accountants discovered Schwab's biggest secret. He was bankrupt. Listed debts amounted to \$2,262,280. Against these debts were assets of \$353,810.

Where had all the money gone? It proved impossible for the accountants to figure out, owing to the scrambled nature of Schwab's finances and his penchant for secrecy. But it was clear that the millions he had reaped since his days at Carnegie had been squandered, mostly through obsessive gambling on Wall Street and elsewhere. By one account, Schwab had lost \$40 million in the 1929 stock market crash. He had again speculated heavily in stocks during the market revival of 1936; this money vanished when Wall Street collapsed in 1937.

Left behind with the worthless stock and gaudy properties were broken promises. In 1935, Schwab had quietly borrowed \$25,000 from the priests who ran St. Francis Academy, the high school he had left 56 years before, promising to bequeath \$2 million to the academy upon his death. It was not mentioned in his will. To protect Schwab's reputation, Eugene Grace arranged for the company to pay the original debt.

Schwab's Loretto estate was divided into several parcels and auctioned off. The grand mansion fetched \$32,500. Today, it is a Franciscan monastery. No buyers were found for Schwab's mansion on Riverside Drive until 1948, when the Chase Bank sold it to developers, who tore it down and built an apartment complex on the site. *Loretto II*, the steelman's sumptuous private railroad car, sold for \$5,000 in 1940. It became, for a time, the traveling home of ex-prizefighter Jack Dempsey as he barnstormed across America with the Cole Brothers Circus.

III. THE GOOD YEARS

When Eugene Grace appeared before a New York press conference in January 1956, the rumor on Wall Street was that something big was about to happen in steel. And Charles Schwab's former lieutenant and successor was happy to say that it was true. Bethlehem, he declared, was planning an enormous construction program at Sparrows Point. Charlie Schwab's promise of 40 years earlier was about to be fulfilled: The Point was going to be the largest steel mill not only in America, but in the world.

What was more, the chairman told the assembled reporters and financial analysts, the company would not have to borrow a penny of the \$300 million needed for the expansion at Sparrows Point and other plants. "The money will come out of our bank accounts," Grace said.

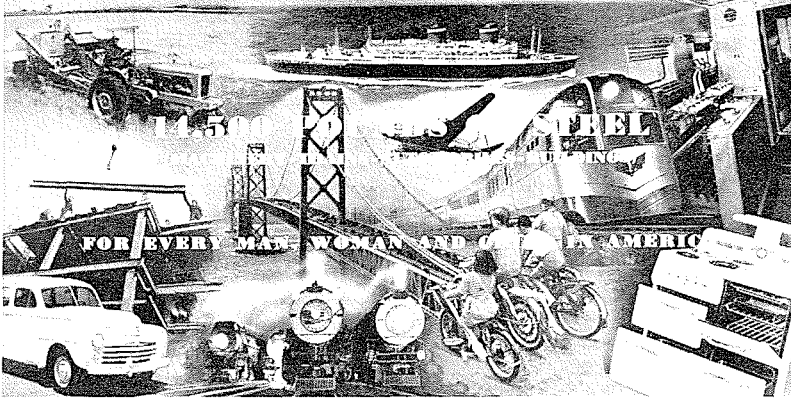
As that impressive feat of financial weightlifting suggested, the years since World War II had been good ones for Sparrows Point, and for American steel in general.

Yet, there were hidden costs in the industry's fat recovery from the Depression. The buoyant postwar economy allowed senior executives at Bethlehem and other steel companies to cling to the belief that demand for traditional steel products would always grow. Thus, they would not have to create new mills that could operate efficiently at *low* levels of output, if need be. They would not have to seek out new technology or new markets, or find ways to improve their products. Fatefully, Bethlehem stuck to the old slogan: Always More Production.

That formula certainly had suited the war years. One month after Pearl Harbor, Bethlehem became the nation's top war contractor. Orders poured in from Washington for Liberty ships, bomb casings, 16-inch armor-piercing shells, gun forgings, ammunition cases, artillery pieces, and a variety of other items. The total came to \$1.3 billion. "Bethlehem is in effect the steel skeleton of Mr. Roosevelt's famous arsenal of democracy," *Life* declared in 1942.

Bethlehem and other steelmakers met unprecedented production challenges. They turned out a remarkable 427 million tons of raw steel, besting their output of 1914-18 by a factor of 2.5, and easily outproducing Germany and Japan. It was the Point's finest hour, a triumph of conventional steelmaking—nothing fancy, just the disciplined application of long-standing practices by experienced workers and managers.

In the open-hearth shops, where "hot metal" (pig iron) from the blast furnaces was combined with alloys and other ingredients to make steel, the men turned out an average of seven tons of liquid steel per minute for nearly four years straight. Some of the unfinished ingots produced after the steel cooled were loaded onto cargo ships bound for America's wartime allies, Britain and the Soviet Union. The rest went to



In 1949, during Big Steel's heyday, an industry advertisement proclaimed that the amount of steel a nation used was a good index to its "degree of civilization." The industry then produced 50 percent of the world's steel.

various finishing mills at the Point. The pipe mill rolled the steel into gun barrels; the wire mill made barbed wire; the hot-strip mills turned out steel plate for shipbuilders. Much of Sparrows Point's sheet metal was shipped to the Glenn L. Martin aircraft plant in Middle River, Maryland, which made B-26 bombers and PBM Flying Boats.

The importance of the Martin plant underscored a subtle but significant difference in battlefield technology between World Wars I and II. In the trenches and at sea, World War I had brought on a revolution in armaments, chiefly the big naval guns, artillery, and other heavy equipment that Bethlehem specialized in. After 1939, however, the new tactics increasingly involved air warfare and electronic sophistication. In the Pacific, for example, the Battle of Midway and most other major naval engagements did not involve battleships and cruisers exchanging fire at relatively close range, but radar-equipped aircraft carriers launching fighter planes and dive-bombers against distant foes.

As a result, while steel remained the foundation *material* of war, Bethlehem Steel in 1941-45 was no longer at the forefront of war technology. A new generation of manufacturers arose: companies such as Boeing, Douglas, and Grumman in aviation; General Electric, RCA, and Westinghouse in the \$1-billion-a-year radar industry.

But none of that loomed large in the steel mills, as managers and workmen focused on the serious business before them. Every day, posters on the walls of the Point's offices and locker rooms reminded them of the importance of the job: "Steel for Victory."

Most labor-management disputes were put on hold for the duration of the war, but a few minor issues were resolved. Mike Howard, then a union shop-floor representative in the Sparrows Point open-hearth

shops, later recalled that the men had never in the past been told how their pay was calculated under Bethlehem's complicated system of bonuses and premiums. "If your furnace was down for a scheduled repair, you got a 'down rate,' but if the furnace roof caved in, that was 'an act of God' and the company wouldn't pay you."

After much effort, Howard convinced the company to give him a breakdown of his own paycheck, which he posted on a bulletin board. "As it turned out, the company's pay system was accurate and pretty fair. The problem was their attitude. The thinking was, 'the less you know about it, the better.'"

Shop Morale

Part of the difficulty was that the superintendents were dealing with a very conservative main office in Bethlehem, according to Howard. "It was funny, but what I found out was that there were some superb managers in the mill, smart and in some cases cultured men, but, boy, did they do their best to hide it! The war opened up communications a bit, but it was still difficult. It really never got through to the top guys that if you leveled with the men, that would carry a lot of weight . . . So if you want to know what did make the men work hard during the war, it was, first off, patriotism, but it was also little reforms like the pay rate disclosure that made a difference in shop morale."

Peace abroad ended the uneasy labor-management truce at home. Shortly after Hiroshima, Eugene Grace announced that, because of the reduction of government orders, all overtime work and premium pay (e.g., for working on Sundays) was to end. During the war, hourly wages had remained virtually frozen, while inflation had jumped by 22 percent. Without overtime, the men at Sparrows Point, who had been averaging \$56.32 a week early in 1945, now found their pay dropping to \$43.38.

In September 1945, Philip Murray, head of the United Steelworkers of America (as the Steel Workers Organizing Committee was renamed during the war), announced that the union would seek a \$2-a-day (25 cents per hour) wage increase in upcoming contract talks. Impossible, retorted Eugene Grace and other top steelmen. The statistics on Grace's desk showed that Bethlehem's profits had been larger in wartime 1916 than they were in wartime 1944, when the company produced six times more steel. To Grace, 1945 and '46 were not shaping up any better. He blamed high labor costs and government price controls, still in effect during the months after the war. Bethlehem, he declared, would not negotiate with the union so long as the latter stuck to its \$2-a-day pay-hike proposal.

In vain, President Harry S. Truman sought to bring the two sides together. He offered to allow a \$4-per-ton increase in steel prices if the industry would agree to an 18½-cents-per-hour pay raise. After some discussion, Murray accepted the offer, but U.S. Steel's Benjamin

Fairless, speaking for the industry, said "No."

Vowing to stay out "til Fairless freezes over," some 750,000 Steelworkers across the nation went out on strike on January 20, 1946. At the time, members of the United Auto Workers and other unions were also walking picket lines, seeking similar wage increases to compensate for the wartime erosion of real wages. The steel industry's hard-line stance, widely interpreted as an effort to defy the White House, did not find much public favor. Even the conservative *New York Daily News* warned that U.S. Steel "can't buck the president of the United States."

When the strike ended on February 15, 1946, the Steelworkers had won an 18½-cents-per-hour increase; Washington allowed the industry to raise steel prices by \$5 a ton, or roughly eight percent.

From the White House to the rolling mills at Sparrows Point, there was a great sense of relief when the men finally went back to work. Then as later, strikes in the industry were seen as a national calamity. Few worried that the simultaneous price and wage increases that ended the 1946 strike might reduce the incentive of both management and labor to seek improved productivity.

A second dynamic was also at work that winter. The wartime years of rationing and forced savings had created an enormous reservoir of consumer demand. The higher postwar wages won by unionized employees in many industries further increased consumer purchasing power. In June 1946, *Fortune* said the obvious—America was experiencing a surprising boom. "There is no measuring it; the old yardsticks won't do," the magazine said. "There is a powerful, a consuming demand for everything that one can eat, wear, enjoy, burn, read, patch, dye, repair, paint, drink, see, ride, taste, smell, and rest in."

45 Million Cans a Day

The steel trade found itself a major beneficiary of the good times. From canning to construction, steel was the building block of industry. In Detroit, auto output climbed, and so did the steel content of the new heavyweight cars rolling off the assembly lines.

As Detroit stepped up its orders for flat-rolled steel, sales of structural shapes, pilings, and reinforcing rods for construction also soared. By August 1946, Bethlehem was rolling such big-ticket items as 22,000 tons of structural shapes for an aluminum plant in Davenport, Iowa, and 11,350 tons of plate girders earmarked for the reconstruction of 154 railroad bridges in war-torn China.

Sparrows Point was running at near capacity. Tin plate, an important product of the Point, was in particularly high demand by canners. New canned foods were appearing, one of the most successful being pet food. By 1946, American consumers were opening and discarding some 45 million cans a day. "Verily," wrote economist Charles H. Hession, "the can-opener has become a *sine qua non* of modern urban living."

Fears of another depression were swept aside. Despite strikes in 1949 and '52 (when Truman briefly seized the steel mills to prevent a walkout that might disrupt Korean War production), steel prospered.

"The sun used to come up over the blast furnaces and sink over the 40-inch plate mill," remembered Ed Gorman. Going to work at the Point, he said, was "going into the middle class."

"That was it," he recalled. "That was the lifestyle. All the people wanted to work at the steel mill. It was the best damn paying job around here." Near the Point, used-car lots, taverns, trailer parks, and restaurants had sprouted everywhere to attract the dollars of the well-paid men. "Ships, Steel, Tin is all you hear/Above the din of the glass/At the bar of Hillegas," said the advertisement of one popular tavern.

'Pioneering Don't Pay'

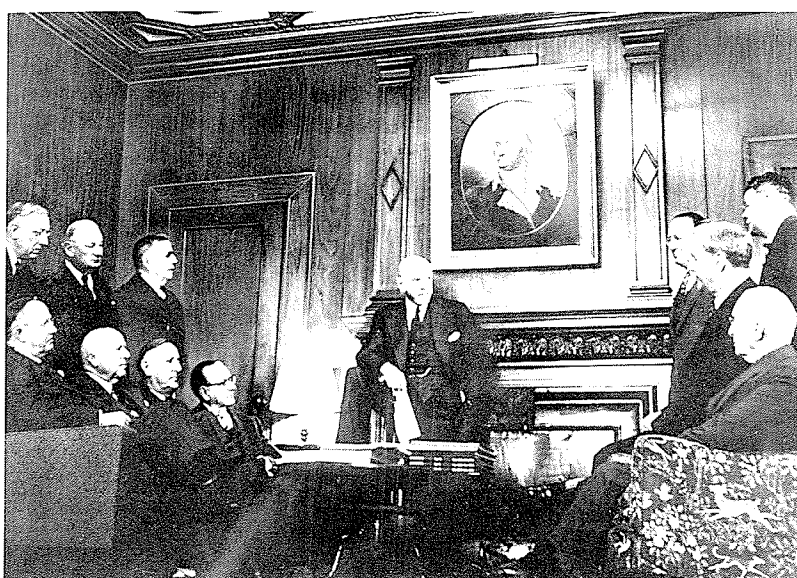
From Main Street to Wall Street, it seemed like the best of times. Steel was the symbol of American brawn. The industry employed 650,000 wage and salary employees in 1953—an all-time high. (Employment would bottom out at 163,000 in 1987.) Bethlehem alone could make as much steel as the whole of Germany's rebuilt industry in 1953, and produced twice as much as Japan's. What made this country strong was simply that it could turn out 110 million tons of steel per year, exceeding the production of the rest of the free world combined and overwhelming Communist Russia by a two-and-a-half-to-one margin.

Steel executives tartly dismissed their few critics. Why, asked economist Walter Adams and others, had Bethlehem or U.S. Steel not built research and development (R&D) laboratories remotely on a par with those of A.T.&T., DuPont, or General Electric?

Already, new jet engines, nuclear reactors, and gas turbines were taxing the limits of standard steel products. Physicists reported that the theoretical strength of iron crystals was 1,000 to 10,000 times greater than their actual developed strength. The problem was getting rid of the chemical impurities in commercial grades of steel. But Bethlehem's few researchers were devoting their attention to incremental improvements, such as finding ways to make the supply of lubricating oil in the mills go twice as far. Andrew Carnegie had supplied the industry's maxim more than half a century earlier: "Pioneering don't pay."

On a more mundane level, as engineers in the steel-purchasing industries noted, there was the possibility of improving the relationship of strength to weight in steel. If standard steel could be made twice as strong as it was, the weight of steel in car bodies, skyscrapers, and tin cans could be cut in half, bringing great economies and, eventually, increased sales.

Moreover, even steelmen were aware that traditional steel production was inefficient in many ways. The energy required to heat, cool, and re-heat the metal as it went through the various steps from open hearth



At Bethlehem Steel's headquarters in 1953, Chairman Eugene G. Grace and other company directors gather beneath a portrait of George Washington.

to finished product was expensive. Already, during the early 1930s, a renowned metallurgist, A. J. Townsend, had experimented with "rotary casting," a process of rolling liquid steel that would eliminate several of these steps. But when the inventor died in 1935, so did American interest in his idea. Townsend was deemed an eccentric. "He'd be alive today," one steel engineer remarked at the time, "if he'd followed my advice and taken it easy [just living] on his royalties."

By far the harshest criticism of the industry focused on its regular lock-step price increases. Ever since Harry Truman acquiesced in the \$5-a-ton price hike in 1946, the large producers had announced regular price increases far above the rising costs of materials and wages. Between 1945 and 1950, for example, Washington's Price Index of Steel Mill Products had jumped by a remarkable 66 percent. At the same time, wages for steel employees had risen by 42 percent and the Consumer Price Index by 34 percent. Between 1950 and 1954, steel price increases continued to outpace labor costs. Senator Estes Kefauver (D.-Tenn.) warned that the price hikes, along with lavish executive pay, merely encouraged union members "to seek and receive all they can."

Every summer, U.S. Steel would announce new "published prices." Then, another major producer, often Bethlehem, would raise its rates by the same amount. The other companies then matched the increase.

Because there were few substitutes for steel, and steel imports were minuscule, customers had little choice but to pay the new prices.

Critics of the industry's oligopolistic practices and technological backwardness spoke up as early as 1950, during congressional hearings held by Representative Emanuel Celler's (D.-N.Y.) Subcommittee on Monopoly Power. Eugene Grace's reaction was swift. "All of it," he told newsmen, "is aimed at forwarding the socialistic state and nationalization and bureaucratic control of business."

Grace was increasingly unwilling to countenance criticism—or even to hear it. His isolation had grown steadily since the war. Having deeded the title of industry spokesman to Benjamin Fairless of U.S. Steel, the aging chairman kept mostly to his Pennsylvania home, venturing out chiefly to indulge in golfing junkets to the Palmetto Club in Aiken, South Carolina.

Although loyal to Charlie Schwab's principles of pursuing bigness and bolstering the next quarter's bottom line, Grace lacked his predecessor's imagination and energy. Asked in 1956 why the company did not split its stock to make it more attractive to small investors, he replied: "It took us some time to get into the blue chip class. We're enjoying it."

Becoming Number One

Grace's executives shared their leader's sensibilities. The board of directors was still composed entirely of "insiders." Except for the vice president of shipbuilding, all of the top executives lived in company compounds such as Bonus Hill and Weyhill. As in Schwab's day, the officers lunched daily in the corporate dining room, occupying leather chairs with gold nameplates. On Saturdays, they socialized at the Saucon Valley Country Club. Wall Street analysts and brokers referred to Bethlehem as "the biggest little company in the world."

At Sparrows Point, the superintendents and managers were engrossed in honing their skills in daily production; few questioned the 60-year-old premises of integrated steelmaking.

The Point's No. 1 open-hearth shop boasted the best average "heat" (or batch) times, tap to tap, in the country; No. 2 shop was second. Every day, the Point made enough steel to frame out a 30-story skyscraper. It was such evidence of managerial prowess that made the executive pulse quicken. One supervisor's wife remembers the day when her husband called her to report that a "seven-hour heat" had been achieved at the No. 2 open hearth. "Well, that was a marvelous thing," she said. "Mac called me sometimes to tell me how many hours he thought they would take. And when he got together with his brothers at the country club all they'd do was compare their tonnage figures."

On October 2, 1957, the construction program that Grace had announced the year before came to fruition. When the first heat of steel was tapped from Sparrows Point's new No. 4 open-hearth shop that day,

the crown of the "world's largest steel mill" passed from U.S. Steel's Gary, Indiana, works to the Point.

Sixty-seven years after it had first lit up the skies, Sparrows Point was the hub of a manufacturing corporation that turned out more than \$2 billion worth of goods annually. Some 28,000 men and 600 women worked all hours of the day and night, and from their labors 1/15th of the nation's steel could be produced. There was nothing in the free world that could match it. The capacity of Japan's major plant, the Yawata works, was less than three million tons, compared to the Point's eight million. To redress their competitive disadvantages, the Japanese were experimenting with the basic oxygen furnace (invented in Austria), a more efficient but still trouble-plagued substitute for the open hearth.

At Sparrows Point, Bethlehem was still pursuing Charlie Schwab's decades-old prescription for steelmaking on a grand scale. A mammoth power station supplied the Point with enough electricity to light up the equivalent of 600,000 homes. Maintenance crews used 180,000 gallons of paint and plaster every year to keep the plant's 758 buildings in good repair. In a press release, Bethlehem proudly noted that it would take a 100-car train 140 trips to fill the Point's coal storage yard.

The mid-1950s were wonderful years for the American steel industry. During the first six months of 1957, U.S. Steel and Bethlehem achieved the highest output and earning figures in their histories. That June, as expected, the industry raised steel prices by an average of \$6 a ton. Spokesmen explained that the increases were necessary to pay for higher union wages and capital costs.

The "boys" celebrated their good fortune in traditional style. Eugene Grace, it was revealed, had reclaimed his title as the highest paid executive in America, pocketing \$809,001 in salary and bonuses. Overall, 11 of the 18 best-paid corporate officers in the United States were on Bethlehem's payroll.

Only a few days after the first heat at the new Sparrows Point open hearth, the headlines were dominated by the seemingly unrelated news that the Soviet Union had launched the world's first manmade satellite into space. *Sputnik* was small and lightweight (only 23 inches in diameter and weighing less than 200 pounds), but it heralded changing times.

A new era of technological sophistication had arrived. Other nations were racing to catch up with America in science and manufacturing. Suddenly, it was an unsettling time for a nation and for business leaders accustomed to unchallenged supremacy.

III. SUNSET

“We had the steel mill that the other people wanted,” recalled Sparrows Point veteran Ben Womer, reminiscing about the 1950s. “Hell, none of this business about Japanese steel or German steel. People came to visit us. We were making steel and making it faster than anybody else.”

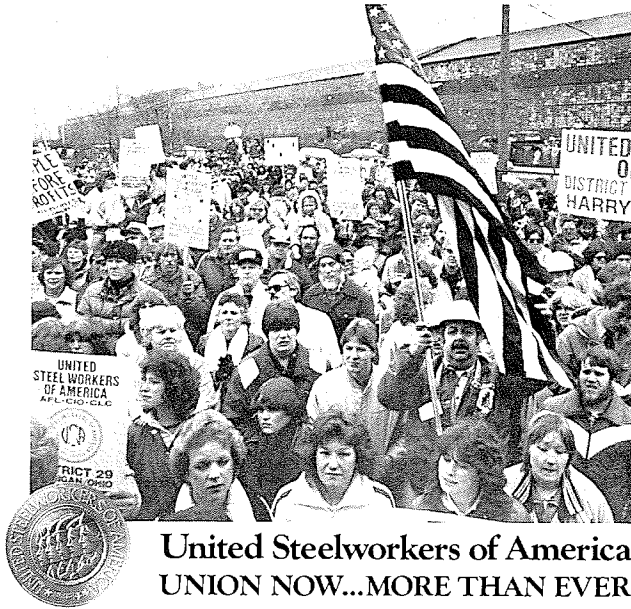
Today, little more than 30 years after it became the world’s biggest steel mill, Sparrows Point’s glorious epoch is preserved only in the memories of Ben Womer and the other retired veterans of that era. The plant, now partially abandoned, has been making less than half as much steel as it did in 1957, and the payroll has shrunk from more than 28,000 to fewer than 8,000. The drama is much the same in Pittsburgh, Gary, Buffalo, and other once-proud American steel towns.

The plight of Sparrows Point and other long-established U.S. mills usually prompts two conventional economic explanations, frequently repeated by steel executives, politicians, and business journalists: “overpaid” American workers and “unfair” foreign competition. These claims are part of a familiar argument that steel is a victim of special circumstances, and thus deserves special treatment in Washington. In recent years, the industry has used the threat of plant closings to extract wage and work-rule concessions from the Steelworkers union. Its lobbyists, seeking a political solution to Big Steel’s economic woes, have made government protection against imported steel their top priority.

Yet, unhappily, neither limits on steel imports imposed by Washington nor wage concessions granted by the Steelworkers have stemmed the industry’s decline. For one simple reason: Such remedies do not address the fundamental cause of steel’s present plight.

A shrinking domestic market for traditional steel-mill products, not overseas competition or high wages at home, has been the overriding source of the steel industry’s distress. In the face of rising prices, steel consumption in the United States grew sluggishly from 1957 to 1973, when it reached 122 million tons, then dropped. Americans now consume only about 90 million tons of finished steel each year from all sources—for all purposes, from jet engines to girders to hand tools.

In a competitive world economy, it is imperative for any business to link its future to new technology, new markets, or substantial savings through improved productivity of labor and capital. But America’s steelmakers have seldom faced up to these realities. Since Charlie Schwab’s day, steelmen have persisted in the belief that the only challenge for corporate managers is to produce *more*. And for just as long, the top executives’ prevailing attitude has been consistent: Because their industry supplies an essential commodity to the nation, it is *owed* a comfortable existence. After all, as Frank Brugler, a Bethlehem execu-



**United Steelworkers of America
UNION NOW...MORE THAN EVER**

“Stop Plant Shutdowns,” urged a recent Steelworkers campaign. Here, workers rally in 1982 at the Trenton, Michigan, plant of bankrupt McLouth Steel. New owners came in, but the 5,000-worker payroll was cut in half.

tive, put it in 1962, “We’re not in business to make steel . . . We’re in business to make money.”

During the growth years, from the Civil War through the 1950s, it was difficult for steel producers *not* to make money, except during the 1930s. But when times changed, senior executives, who thought of themselves as hard-headed and pragmatic, did not adjust. They spurned product research. They choked off innovation. They inflated steel prices to maintain quarterly dividends, and they let their mills become obsolete.

In so doing, they created opportunities for their rivals—not only for the Japanese and other foreign steelmakers but also for domestic “mini” mills and for makers of steel substitutes, such as aluminum and plastic.

The recession of 1958 flashed the first warning that steel had badly overexpanded. Production at Sparrows Point and other plants skidded to under 60 percent of capacity, the first significant drop since the Depression. Convinced that demand would soon rebound, as it always had in the past, the industry simply relied on another price hike to keep its earnings steady. The \$4.50-a-ton advance came in the middle of the country’s worst downturn since the Depression.

Steel was no longer the cheap commodity that built America. Steel prices had jumped by 165 percent since 1945—double the rate of in-

creases in concrete, plastics, and other industrial products. After absorbing seven price hikes in eight years, many industrial buyers began searching for steel substitutes.

Aluminum was one of the first invaders of steel's traditional domain. For years, the leading aluminum companies (Alcoa, Reynolds Metals, and Kaiser Aluminum) had been searching for new business outside of their established footholds in construction, airplane components, and engine parts. They were seeking a mass market, explained one industry executive, where "the product is consumed—not put in place to last forever." The \$2-billion-a-year metal-container business, hitherto a monopoly of steel, offered such an opportunity.

Surrendering to Aluminum

The first loosening of that monopoly came during the 1958 recession, when Esso Standard Oil switched from using tin plate (much of it supplied by Sparrows Point) to aluminum plate at the can-making plant in its Bayonne, New Jersey, refinery. Reynolds Metals had offered the oil company a creative deal to keep costs down: It agreed to buy back the used one-quart cans from Esso service stations.

Esso's conversion to aluminum involved only 35 million cans per year—a tiny share of the overall 50-billion can market. Yet, while the steel industry looked on, the aluminum makers assigned engineers to improve aluminum can-making and enlarge their market.

In January 1960, Reynolds shipped a truckload of aluminum can-making equipment from its research laboratory in Richmond, Virginia, to a Minute Maid orange juice plant in Florida City. The new machinery turned out seven million cans in three weeks. Minute Maid purchased a second can line and, before long, Reynolds also had orders from two other major juice canners, Winter Garden and Birds Eye.

Steel's response was lethargic. First, there was general disbelief that the market was threatened; then the steelmakers made a belated move toward providing lighter, cheaper canning stock. It was not until mid-1961 that U.S. Steel and Bethlehem published prices for a new "skinny" tin plate. For a brief period, it was priced lower than aluminum. Then, Alcoa and Reynolds dropped their prices. Unwilling to meet the challenge, U.S. Steel and Bethlehem simply withdrew. They announced that they would no longer supply tin plate to citrus packers, thus surrendering a two-billion-can-per-year market.

Over the next 30 years, aluminum would wrest more and more of the metal container business from steel, winning even the share of the beer-can market that steel had captured from glass bottle manufacturers during the Depression.*

*Today, 99 percent of all beer cans and 90 percent of all soft-drink cans are made of aluminum. (One of the few beers still available in tin cans is Pittsburgh Brewing's Iron City brand.)

Even as aluminum was making inroads into steel's markets, years of research in plastics by the U.S. chemical industry, led by DuPont, were beginning to pay off. As steel became more expensive, for example, Detroit's automakers found that they could save money by replacing some steel components with plastic parts coated with a thin layer of metal. Increasingly, "plated plastics" were substituted for metal in instrument panels, dome lights, ventilation grills, and other car parts. By 1963, the steel content of autos made in Detroit was down to 76 percent, compared to 85 percent in 1946. (Today, the figure is only 56 percent.) That was just the beginning. In small ways at first, other manufacturers began to find ways to replace steel with plastics—in knobs for television and radio sets, as trim on toasters.

If the steel trade was to continue to prosper, it had to defend itself by creating lighter, stronger, more flexible steel, while also seeking out new avenues of growth through specialized applications. For example, as critics noted, it could have explored ways to combine plastics, ceramics, or other new materials with steel-based products.

But Bethlehem and other big steelmakers persisted in spending less than other corporations did on research and development (R&D).^{*} Although Bethlehem opened a large new laboratory in 1961, this did not change the company's approach to research, which, as always, stressed incremental improvements in existing steelmaking processes.

Although it had plenty of cash on hand during the early 1960s, Bethlehem was reluctant to invest in the new basic oxygen furnace (BOF), a high-technology replacement for the open-hearth furnace. As Bethlehem executive John Jacobs explained in 1962, large BOFs were still plagued by technical shortcomings. And these more productive furnaces would shorten the useful life of the costly open hearths built during the 1950s. "We move only when improvements are so good we can no longer afford what we've got," he said.

A Matter of Conviction

Meanwhile, Japanese and West German steelmakers had somehow largely overcome the problems of large-scale basic oxygen furnaces. While their new BOFs were making 200 tons of steel every 45 minutes, the ponderous American open hearths required eight hours, on average, to tap a 425-ton heat. Finally, in 1964, Bethlehem's board authorized the construction of a basic oxygen furnace at Sparrows Point.

Having accepted the oxygen furnace, management failed to take advantage of another important new production tool, the continuous caster. After A. J. Townsend's experiments of the 1930s, American interest in the device had waned. But West German steelmakers had

^{*}A 1966 study by the National Science Foundation reported that the leading steelmakers spent only 60 cents of every \$100 in revenues on research, compared to an average of \$1.90 for all U.S. manufacturers.

BIG STEEL VERSUS THE STEELWORKERS

"Attaboy, Harry! Attaboy, Harry!" said Philip Murray, president of the Steelworkers union. It was April 8, 1952. President Harry S. Truman was on the radio, announcing that he had ordered a government takeover of the nation's steel mills to avert a steel strike.

The president was furious. While U.S. troops were fighting in Korea, the industry's leaders, as Truman saw it, were threatening to disrupt the war effort by refusing to settle with the union unless he consented to a sharp price increase. Not only did the companies want enough to pay for higher wages, Truman declared, "they want to double their money on the deal."

The mills operated under federal control until early June, when the U.S. Supreme Court ruled the takeover illegal. Then the Steelworkers went out on strike. When they returned to work, on July 26, the industry had won a \$5.20-per-ton price increase, \$1 less than it had sought; the Steelworkers gained 21½ cents per hour. Truman won the undying antipathy of steel executives.

Later, during the 1950s and '60s, the pattern was repeated. Big Steel's labor-management conflicts, the product of decades-old enmities, frequently ended up in Washington. Steel was simply too big and too important to the nation for politicians to ignore.

Big Steel added to its own woes during a 26-day strike in 1956, when executives proposed a contract provision (Clause 2B) that preserved "past practices" in the mills. The idea was to rationalize a hodge-podge of local plant agreements; the unintended effect was virtually to freeze manning levels. By 1959, steel executives had realized their mistake. With the backing of President Dwight D. Eisenhower, who agreed not to intervene, the steelmakers decided to "take a strike" in 1959.

At the bargaining table, however, industry negotiators produced little hard evidence of "featherbedding." Explained newsman John Strohmeier: Plant bosses refused to supply headquarters with particulars, choosing "to protect their work force for the day that production would pick up again." Steelworkers president David J. McDonald was gleeful. "I couldn't have written the script better myself," he said. Finally, after 116 days, Eisenhower stepped in, and the strike was settled in the union's favor. Clause 2B survived intact.

Although that was the last major steel strike for 26 years, the two sides frequently approached the edge. In 1965, President Lyndon B. Johnson summoned deadlocked negotiators to the White House, barked threats and curses at them, and ordered them to come to terms. Two days later, they did.

been developing a caster since the 1950s. In 1962, Roanoke Electric, a small independent Virginia company, introduced continuous casting to the United States.

Despite the fact that continuous casting would eliminate hundreds of mill jobs and cut production costs substantially, Bethlehem stuck to its decades-old method of making steel. Sparrows Point was not to get a caster for 20 years.

What was remarkable, one former Sparrows Point manager mused

Such brinkmanship proved costly. Every two or three years, as a strike deadline approached, major customers, notably Detroit's automakers, amassed huge stockpiles of steel. When no strike occurred, the steel mills, lacking fresh orders, were still forced to shut down for months.

To "smooth out" the market, the union agreed in 1973 to a "no strike" agreement. The price: an annual cost-of-living adjustment *plus* a three percent pay hike every year. The pact was widely hailed as a breakthrough.

What nobody saw coming was the inflationary surge of the 1970s. In 1973, Steelworkers' wages and benefits totaled about \$8 per hour, about 50 percent more than the average in U.S. manufacturing. By 1982, hourly compensation had soared to \$23, or double the manufacturing average. Japanese steelworkers, meanwhile, earned \$10. By 1975, to make matters worse, the Japanese eliminated the U.S. edge in labor productivity. Yet, steel executives twice renewed the "no strike" pact with the Steelworkers during the 1970s.

By 1983, Big Steel was suffering plant shutdowns, bankruptcies, and layoffs. The Rustbelt—autos, machine tools, heavy equipment manufacturing—was in trouble. The Steelworkers reluctantly agreed to (temporary) concessions worth \$1.25 per hour. In recent years, each company has bargained separately with the union, wringing out more concessions.

Even so, labor costs remain close to \$23 per hour, about \$4 more than in Japan and \$20 more than in South Korea. As in other U.S. heavy industries, payrolls have shrunk: Steel now employs 121,000 production workers, down from 291,000 in 1980. Partly as a result of these huge cutbacks, American steel again enjoys a slight edge in labor productivity over Japan.

Yet, labor and management are still at war. In July 1986, 22,000 workers at USX (formerly U.S. Steel) went back to the picket line after the company demanded more concessions. The strike (or "lockout") lasted 184 days, longer than the great stand-off of 1959.

This time, however, there were no conferences at the White House and few headlines in the newspapers. The longest strike in Big Steel's history was barely noticed outside of Pittsburgh; the industry was no longer regarded as the key to American might.



David J. McDonald

during an interview years later, was that nearly everyone in management was "oblivious" to the company's declining competitiveness. Such was the hazard of a corporate culture that had rewarded conformity and promoted insiders. In this closed world, supervisors went about their daily routines, worshipping the daily production figures, lulled by the acres of heavy machinery that still made Sparrows Point the biggest mill in the world during the mid-1960s. They were convinced that steel was indispensable to the nation, regardless of cost. "We listened to our [own]

propaganda for so long, we believed it," said the former executive.

Traditionally, success in manufacturing is determined by the so-called Three M's: Men, Materials, and Machines. And it was in the latter two areas that Big Steel first stumbled. The early strength of Sparrows Point, even before Charlie Schwab took it over, was the production of high-quality, low-cost steel rails during the late-19th-century heyday of the great railroads. Cheap raw materials and new labor-saving technology were the keys to its success. In retrospect, Schwab's greatest contribution was to move the Point forward into production of flat-rolled steel for the new consumer industries—canned goods, home appliances, autos—of the early 20th century. Yet, his successors lacked his ability to look ahead and adapt to changing technology and markets.

Adding to these failures was the needless wrangling between the companies and the Steelworkers union. [See box, p. 76.] Strains between labor and management, not much reduced since the 1930s, led to several costly strikes during the 1950s. The worst was the 116-day strike in 1959. Executives at Bethlehem and the other major steel mills entered the contract talks that year determined to win a one-year wage freeze and concessions on work rules, which, they said, fostered "featherbedding and loafing."

The Steelworkers, led by the uninspiring David J. McDonald, probably were willing to settle for a small increase in wages. At \$3.04 an hour, they were already among the best-paid blue-collar workers in the nation. But at Sparrows Point and other plants, old-timers remembered the abuses of power they had endured during the 1930s, when management enjoyed unrestricted authority in the mills. Younger men feared for their jobs. A revision of work rules, given the prevailing distrust between the two sides, was out of the question.

Foreign Steel

Idling 511,000 men, the strike began in July 1959 and dragged on until November. It was halted only by President Dwight D. Eisenhower's reluctant invocation of his emergency powers under the Taft-Hartley Act. The Detroit automakers, who had stockpiled steel in anticipation of the strike, were running out of supplies and beginning to lay off workers. With Vice President Richard M. Nixon mediating, the two sides reached an accord: no changes in work rules, and a hefty 40-cents-an-hour increase in wages and benefits over three years.*

It is an article of faith among veteran steel executives, frequently repeated in the press, that the 1959 strike opened the door to the "import problem." But steel imports had been on the rise before the strike. They nearly doubled from January to June 1958. Then, with the

*A different style of labor relations prevailed in the competing aluminum industry, where management had not sought confrontation. When the union's contract with the aluminum makers expired the same year, negotiations continued, without a strike, and the union settled for an increase of 28 cents an hour.

industry's mid-recession price hike that July, imports surged, exceeding exports. The gap widened during the first six months of 1959, then increased by another 50 percent during the 116-day strike. The United States has remained a net importer of steel ever since.

Labor *was* cheaper overseas. But wages alone did not determine the cost of steel; labor productivity and capital investment were the most important variables. In the past, superior U.S. technology and output had compensated for higher U.S. wages. Moreover, according to former industry economist Donald Barnett, the overseas wage advantage was *diminishing* as America's imports of steel were rising. "The extent to which U.S. [steel] wage rates exceeded those of its international competitors," he wrote recently, "was relatively greater in the first 15 years after World War II than at any time before or since."

The Mini Mills Emerge

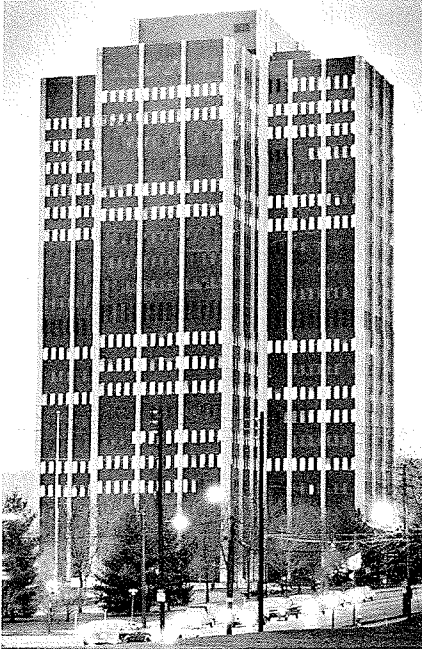
The same management decisions that had put Sparrows Point and other U.S. steel plants at a disadvantage compared to producers of substitute materials now proved costly in meeting foreign competition. The Americans found themselves progressively outclassed by steelmakers in West Germany, Canada, Brazil, and, much later, South Korea. But the chief competitors were the Japanese.

By 1962, Yoshihiro Inayama, president of Yawata Steel, could boast of a new mill at Tobata that incorporated the latest in basic oxygen furnaces and continuous casting technology. His steel was soon considered superior in terms of chemical purity and corrosion resistance to the basic carbon products supplied by American mills.

Another company, Fuji Iron & Steel, began exporting a new product to the United States: chrome-plated strip steel. Developed in response to the rising cost of tin, this extremely thin yet flexible new product was cheaper than aluminum or tin plate. It was to find great favor among U.S. canners.

Japanese steel shipments to the United States increased exponentially, from a mere 31,466 tons in 1957 to 4.5 million tons in 1967, as steel became the island nation's top export. The economics that drove up the sale of imports was simple: The quality of wire rod shipped 10,000 miles from Japan to New York City was comparable, if not superior, to that shipped from Sparrows Point 200 miles away—and about 15 percent cheaper. The domestic companies refused to "meet the competition" with price cuts, even on items where their costs were no greater than those of the Japanese. In fact, when imports were running at record levels in 1967, U.S. Steel, Bethlehem, and Republic again *raised* prices.

Instead of confronting the Asian challenge head on, the American Iron and Steel Institute (AISI), the industry trade association, embarked on a lobbying campaign to persuade Congress to erect trade barriers against foreign steel. The Steelworkers leadership joined in. The AISI



Erected during the early 1970s, when Big Steel seemed to be rebounding, Bethlehem Steel's \$35-million headquarters building in Bethlehem, Pennsylvania, was put up for sale in 1987. It remains (only partially occupied) in Bethlehem's hands today.

and the union argued that Big Steel was a victim of “dumping” at below-cost prices by Japanese and European steelmakers. Without government protection, industry spokesmen declared, American companies could not be expected to compete with overseas producers. “Bethlehem and other U.S. producers can justify continued investment in steel manufacturing properties *only* if they have the opportunity to participate in market growth,” warned Bethlehem’s Edmund Martin.

In 1969 the Nixon administration persuaded the Japanese and Europeans to sign “Voluntary Restraint Agreements” on steel. Imports were reduced to 14 million tons, or roughly 25 percent below existing levels, and would be allowed to increase gradually over the next three years.

For a short time, the strategy worked. But Bethlehem, U.S. Steel, and other major steelmakers resumed their old ways. Steel prices rose by 58 percent from 1969 to 1974, while the Consumer Price Index rose by 34 percent.

Meanwhile, a new kind of *domestic* competition was growing. The major steelmakers had built few mills in the South and West, partly for fear of undermining the value of their older plants in the Midwest and East. Texas and California, which consumed 25 percent of the nation’s steel, possessed only four percent of its production capacity. As early as the 1950s, a few small independent steel companies had begun to capi-

talize on the excessive caution of the majors.

The "mini mills" departed from the dogma that steel had to be big to prosper. Pioneering minis such as Florida Steel and Virginia's Roanoke Electric were very small—and very efficient.

The nonunion mini mills enjoyed an edge in labor costs over the major producers,* but they had other, more important, advantages. They used downscaled equipment to pare expenses. For raw material, they used scrap metal that they melted down in electric furnaces—much less costly than making steel from scratch. They quickly adopted new technology. With start-up costs as low as \$4 million, the independents could turn out selected products cheaply. Their marketing strategy was simple. By undercutting the standard list prices for steel products, they dipped under the majors' price umbrella and got all the business they could handle.

Once scorned by steelmen at the major companies as "bandits," the mini mills proliferated and grew. By 1972, about 20 small companies were producing steel wire, reinforcing bars, and rods.

But the big "integrated" steelmakers did not change course. In 1972, Bethlehem's board of directors, buoyed by company forecasts of a 25-million-ton surge in domestic steel demand by 1980, rejected alternative technologies and decided to build a traditional-style blast furnace at Sparrows Point. With a price tag of \$175 million, it would be the largest in the Western Hemisphere.

At a gala opening ceremony for Maryland politicians and businessmen in 1978, Bethlehem unveiled the new structure as "'L' Furnace—Symbol of Progress." The company had itself a showcase, a gleaming, three-sided edifice that towered 298 feet—higher than most office buildings in downtown Baltimore.

Clinging to Illusions

Even before the "Big L" opened, the perennial optimism of Bethlehem headquarters again proved mistaken. On top of softening demand for steel, the company suffered a major flood at its Johnstown plant. In 1977, Bethlehem reported a net loss of \$448.2 million, the worst loss ever suffered by a U.S. corporation, until Chrysler eclipsed it two years later. Major sections of Bethlehem's Johnstown and Lackawanna works were shut down. Seven thousand jobs were eliminated.

The money that was poured into the "Big L" did little to break Bethlehem's fall. The company needed new markets, not a new multi-million-dollar blast furnace.

If Big Steel clung to its illusions, it was not alone. "Make no mistake about it," Bethlehem chairman Lewis Foy declared in 1979, "the market

*By 1985, major U.S. firms were paying an average of \$22.50 per man-hour in wages and benefits for workers in wire and rod mills, compared with \$17.50 at the booming mini mills. (Wages alone were about \$14 per hour.) At integrated Japanese plants, labor costs averaged \$11.70 per man-hour.

for steel is growing." As evidence, he pointed to a new study by the U.S. Department of Commerce. The federal agency had just projected that the steelmakers would need to expand capacity by 12 percent during the 1980s to meet increased domestic demand. Washington had been encouraging steel's expansion for decades—it was good for America, good for workers, and good politics.

After a brief revival, steel sales tumbled again in 1982 amid a general recession, as Paul Volcker's Federal Reserve Board tightened the money supply. Mill production fell to 55 percent of capacity. Bethlehem was back in the red. Chairman Donald Trautlein, Foy's successor, responded with massive layoffs. By May 1982, the number of workmen idled at Sparrows Point reached 5,030, the highest total since 1933.

The bad news piled up. As output at Sparrows Point dropped to 40 percent, the pipe mill, the rod and wire mill, and a battery of coke ovens were shut down. The unemployment lines lengthened. Bethlehem reported a loss of \$1.47 billion in 1982, accounting for nearly half of all losses reported by the nation's top 15 integrated steel producers. Foreign steelmakers, aided by the strong dollar (which reduced the price of imported goods) captured one-fourth of the U.S. market that year. Domestic mini mills claimed another 20 percent. Collectively, the mini mills had a larger share of the market than either Bethlehem or U.S. Steel.

The effects of the trauma at Sparrows Point were felt throughout Maryland. A 1982 report by Chase Econometrics ranked the Baltimore metropolitan area at the bottom of all cities in the hard-hit Northeast in terms of economic growth. Since 1980, Baltimore had lost 20,000 jobs.

No New Philosophy

Once again, executive myopia contributed to the rout. In 1982, Chairman Trautlein made the first of several cuts in Bethlehem's already modest R&D outlays. (By contrast, Japanese steelmakers, hurt by the same slump in demand for steel, increased R&D spending.) In 1985, Trautlein pulled Bethlehem out of production of bolt fasteners, saying such work had no future; that year, North Carolina's Nucor Corporation, an aggressive mini mill, broke ground for a new bolt plant. (Nucor now enjoys a \$45-million-a-year business.) In 1986, employee morale, already low due to pay cuts and layoffs, was dealt another blow when it was revealed that Chairman Trautlein (salary: \$542,060) had just received an 11 percent pay hike.

By the time Trautlein retired in 1986, the company had plummeted from the ninth spot on the *Fortune 500* list in 1957 to 89th. His successor was Walter Williams, a long-time company man. "Mr. Williams has made it clear," reported the *New York Times*, "that he would apply no new philosophies in his efforts to restore profitability."

Williams succeeded in returning Bethlehem to the black in 1987, through the sale of assets, including valuable raw material deposits.

Bethlehem was also helped by federal tax breaks and by the Reagan administration's imposition of a quota on imports of semifinished steel slabs. Even obsolete equipment can operate profitably in a captive market, so Bethlehem re-fired several antiquated open hearths at Sparrows Point. Financial analysts expect the company to turn a profit in 1988.

Despite the current upturn in earnings, the long-term outlook for Bethlehem—and for Big Steel in America—is not bright. Today's transient prosperity is based on protectionism and high prices. While Bethlehem and other steelmakers have cut costs sharply by closing down mills and laying off workers, the industry still has not dealt with the fundamentals: finding new markets and catching up with foreign technology.

At Bethlehem, the same breed of corporate "insiders" have been in command almost continuously since Charlie Schwab died. And, unlike their counterparts in the auto and other manufacturing industries, where economic woes have improved cooperation between management and labor, steel executives and Steelworker leaders seem to have learned little. They are still locked in the mutual hostility that has long separated the two sides. "We are reliving the past," observed Dave Wilson, the Steelworkers' district director in Baltimore, commenting on the perpetual quarrels over job reductions and work-rule revisions.

Today at Sparrows Point there are 10,000 fewer jobs than in 1980; 21,000 fewer than in 1957. The workers, some 7,900 men and women, pass through the guard booths into a world of empty railroad tracks and partly used buildings. The plant survives by supplying sheet and canning metal for General Motors and Campbell Soups, and semifinished slabs and galvanized products for other industrial buyers. A continuous caster, so long delayed, was installed recently, increasing quality and lowering costs. It was imported from Austria.

The oldest open-hearth sheds, too big to demolish, dominate the west side of the peninsula, facing Baltimore Harbor. To the south, the old blast furnaces have been dynamited and the debris carted away by truck. Acres of abandoned coke ovens cast a sepulchral shadow over the waterfront. Amid the rusting towers, it is hard to imagine what was once here, the thousands of strong men who came to the Point over the decades, sweating, shouting, and forging mountains of foreign ore into rivers of American steel.



BACKGROUND BOOKS

THE RISE AND DECLINE OF BIG STEEL

Of all the wounded giants of American industry—autos, rubber, machine tools—Big Steel stands out as perhaps the most dismaying case.

Its often lackluster management, technological lethargy, and dismal labor relations were widely discussed by economists, politicians, and businessmen as early as the 1950s. Yet, the industry's downward spiral was not halted.

By the late 1970s, steel and other U.S. smokestack industries were in disarray. Ships carrying foreign-made steel, autos, and farm equipment filled American ports. From Akron and Detroit to Baltimore, hundreds of thousands of well-paid factory jobs disappeared—some 265,000 in steel alone—between 1975 and 1986.

From the universities and think tanks came calls for a Japanese-style “industrial policy”—recently rechristened “competitiveness policy.”

In **Minding America's Business** (Random, 1983), Harvard's Robert B. Reich and business consultant Ira C. Magaziner warned that foreign domination of the steel business could “jeopardize the competitiveness of many sectors of our domestic economy.” Their proposals, echoed among many in Congress, included: government loans to industry, export subsidies, and government “guidance” for corporate executives.

In **Manufacturing Matters: The Myth of the Post-Industrial Economy** (Basic, 1987), Berkeley economists Stephen S. Cohen and John Zysman call the notion that the decline of manufacturing is part of the economy's “natural” progression from farming to manufacturing to services a delusion.

“If we lose mastery and control of manufacturing,” they warn, many high-paying service jobs will disappear. While only 21 million Americans now work in factories, the authors estimate that an-

other 20–40 million provide various services to manufacturers, from driving delivery trucks to underwriting bonds for plant expansions. Cohen and Zysman also advocate a federal industrial policy.

But Paul A. Tiffany, of the Wharton School, finds little reason to endorse such an approach. Washington, he writes in **The Decline of American Steel** (Oxford, 1988), did have a de facto industrial policy for steel during most of the 20th century. It was a failure.

Like the industry's executives, Tiffany says, federal officials exhibited “almost a willful lack of creativity” in dealing with the industry's difficulties.

After World War II, for example, the Truman administration prodded the reluctant steelmakers to increase capacity, took them to court over alleged price fixing, and helped increase labor costs by siding with the Steelworkers union in wage disputes. Later, as part of his effort to “contain” communism by promoting prosperity abroad, President Dwight D. Eisenhower encouraged the World Bank and other U.S.-backed international agencies to provide \$176 million in aid to Japan's rising steelmakers during 1957–60.

Such chronic contradictions in policy do not augur well, Tiffany concludes, for any new federal initiative.

But few specialists share Tiffany's readiness to blame Washington. Until the 1970s, there was general accord outside the industry that Big Steel should be broken up, forcing it, as Walter Adams wrote in **The Structure of American Industry** (Macmillan, 7th ed., 1985), to “play the capitalistic game according to its naked, shameless, yet vitalizing and invigorating rules.”

But steel preferred a cozier game. Beginning in 1907, Adams recalled, U.S. Steel's Elbert Gary hosted occasional dinners for lesser steelmen, where he

“exhorted them like a Methodist preacher at a camp meeting to follow the price leadership of U.S. Steel.” Thereafter, the companies generally practiced what Gary called “friendly competition.”

Under the antitrust laws, federal prosecutors were unable to win many cases. After the Supreme Court rejected an effort to break up U.S. Steel in 1920, Washington stuck to occasional prosecutions for collusive pricing.

When foreign steelmakers began invading the U.S. market during the 1950s, the complacency bred by years of friendly competition hurt Big Steel.

Today, many economists admire the cooperation among business, government, and labor that, in their view, fostered the growth of Japanese and West German steelmakers.

They pooh-pooh the popular notion that these foreigners gained unique advantages because they had to rebuild their plants from scratch after World War II: U.S. steelmakers increased their own plant capacity by 50 percent between 1945 and 1960.

What about the role of labor in Big Steel's tumble?

“Steel labor and management failed to respond to ample warnings of the industry's declining competitiveness,” concludes John P. Hoerr in **And the Wolf Finally Came** (Univ. of Pittsburgh, 1988). Both sides must be faulted for the big wage hikes of the 1970s, which came just as the industry was trying to fend off a surge of steel imports.

Meanwhile, observes Robert W. Crandall in **The U.S. Steel Industry in Recurrent Crisis** (Brookings, 1981), new federal environmental regulations were increasing the industry's pollution cleanup costs to \$600 million annually.

Apart from economists' analyses, there are few solid chronicles of the decline of American steel. John Stroh-

meyer's **Crisis in Bethlehem** (Penguin, 1987) is one bright exception. **Steel Titan** (Oxford, 1975), by Robert Hessen, sketches Charles Schwab, the creator of “the biggest little company in the world.” Sparrows Point is the subject of a film, *One Voice*, by the Baltimore Steelworkers' History Project.

By all accounts, the worst is yet to come. In **Up from the Ashes** (Brookings, 1986), Donald F. Barnett and Robert W. Crandall estimate that the major steelmakers, who have shed 30 percent of their plant capacity since the mid-1970s, may have to cut an additional 50 percent by the end of the century. Sparrows Point may survive, they predict, but only as a producer of steel slabs, shipped elsewhere for finishing.

The authors foresee a continuing decline in U.S. steel consumption and a gradual rise in imports. These are the trends, under way for a decade or more, that have made Big Steel's decline all but inevitable.

Yet, Barnett and Crandall are encouraged by the production performance of America's “mini mills.” By the year 2000, they write, “the United States will boast a highly competitive small-scale steel sector that accounts for nearly 40 percent of the country's steel requirements . . . at prices competitive with the lowest-cost producers in developing countries.”

The flexibility and relatively small size of the mini mills may provide a better model for future U.S. manufacturing competitiveness than do the much lauded “industrial policies” of other nations. Indeed, even Japanese and West German steelmakers face their own competitiveness problem, as Brazil, Taiwan, and South Korea step up exports of low-priced steel. No longer is steel the monopoly, or the measure, of the world's great economic powers.