

---

---

## "COMMON REQUIREMENTS OF INDUSTRIALIZATION"

### *Cold War Mass Production*

FROM THE EARLY 1940S THROUGH THE 1960S, IT BECAME common among political intellectuals and academics, especially in the United States, to argue that the United States and the Soviet Union were becoming more similar, that ultimately they would come to closely resemble one another. James Burnham first made this case to a broad public in his 1941 book, *The Managerial Revolution*. Burnham, an American backer of Leon Trotsky, initially accepted the exiled Russian leader's characterization of the Soviet Union as a "workers' state," even if degenerated by Stalinism and the rise of a "Bonapartist bureaucracy." But in late 1939, he broke with Trotsky, coming to see the U.S.S.R. as neither socialist nor capitalist but as a new type of social organism, in which a managerial elite ruled through control of state-owned property. Burnham contended that bureaucratic collectivism, or what he called "managerial society," represented a universal phase of historical development, the actual successor to capitalism, rather than socialism, which had been posited as such by leftists for a century. The Soviet Union, he argued, represented the advance guard of a form of social organization that the United States and European capitalist nations inevitably would come to adopt.<sup>1</sup> A few years later, Friedrich von Hayek, coming from the political right, made a similar claim, seeing a growth of collectivism

in capitalist societies pushing them toward the "serfdom" to which he believed socialism was headed.

The idea that the Soviet Union and the United States were converging soon gained traction among American social scientists. The leading sociologist of the post-World War II era, Talcott Parsons, was an early adopter of "convergence theory," which came to be embraced, in one form or another, by such luminaries as C. Wright Mills, Alex Inkeles, Herbert Marcuse, and Walt Rostow. Leftists like Mills and Marcuse fretted that the stifling bureaucracy of Soviet life was being re-created in the West, while Parsons and other liberal proponents of modernization theories thought that the Soviet Union would inevitably become more like the United States.

What these theories shared was the belief that economic development was behind convergence. As Marcuse put it in 1958, both the Soviet Union and the United States were shaped by the "common requirements of industrialization," which pushed them toward bureaucracy, centralization, and regimentation. In effect, these authors believed, modern industry existed as a social and cultural system independent of the economic arrangements in which it was embedded. Ultimately it would mold the larger society. They adopted "industrial society" and "industrial civilization" as descriptive terms and analytic categories that bridged the Iron Curtain, capturing the central features of life in "developed" or "advanced" nations. By contrast, "capitalism" and "communism" were seen in sophisticated academic circles as atavistic slogans, of little explanatory value in understanding modern life.<sup>2</sup>

Ironically, at the very moment when some of the leading minds of the left, right, and center were declaring that industrial development was resulting in a convergence of the capitalist and communist blocs, their actual industrial practices were diverging. Through World War II, in both realms, industrial giantism was adopted as a road to economic development, social progress, and modernity, a heroic effort celebrated in art, literature, and politics. But after the war, American corporations moved away from ever-upping the scale of industry, deciding that the

industrial behemoth had reached its limits of profitability and control. Rather than continuing to concentrate production in industrial colossuses, they began to decentralize manufacturing in smaller, scattered plants. By contrast, leaders in the Soviet Bloc—and in other parts of the world—retained a belief in the efficacy of gigantic industrial projects as means for rapid economic growth and as symbols of national prowess and social progress. Though there were multiple reasons for the diverging fate of the giant factory in the United States, the Soviet Bloc, Western Europe, and what came to be called the Third World, the course of labor organization was critical. The intensity of class conflict in the United States brought unprecedented benefits to workers in large-scale industry, making what retrospectively has come to be called the “American Dream” come true, at least for a while. But it also contributed to the demise of the giant factory. Elsewhere, with labor less volatile, industrial giantism continued to be seen as a viable path to the future.

### Military Giantism

The downsizing of American factories came after a final wave of industrial giantism during World War II, devoted to making military goods. Some armaments production took place at government facilities, which swelled during the war. The Brooklyn Navy Yard doubled its size, taking over adjacent land to build the world’s largest dry docks and the world’s largest crane, with its employment roll hitting seventy thousand. But most defense production took place in corporate-run factories, mills, and shipyards, facilities converted to war production or newly built for the purpose.<sup>3</sup>

Albert Kahn designed some of the largest war plants in a last burst of activity before his death in December 1942. They included the Chrysler Tank Arsenal in Warren, Michigan; the East Chicago cast armor plant for American Steel Foundries Company; Amertorp Corporation’s tor-

pedo plant in Chicago; the Curtis-Wright Corporation plant in St. Louis; the Wright Aeronautical plant in Cincinnati; and the Dodge Chicago plant, which made aircraft engines (the last three of these were huge structures). But Kahn’s largest war plant, the best known of all the wartime defense facilities, was the Ford Willow Run aircraft factory, an effort to bring Fordism to an industry even more complex than the auto industry.<sup>4</sup>

As World War II loomed, in a dash to build up American air warfare capacity, defense officials—and Walter Reuther, by this time a top UAW leader—pressed for the partial conversion of the automobile industry to airplane production. Officials at Ford, which previously had manufactured small aircraft, with limited success, proposed to use assembly-line methods to produce the newly designed B-24 heavy bomber. When defense officials agreed, a crash effort began to build a massive factory and adjacent airport on Ford-owned land in Ypsilanti, Michigan, twenty-five miles west of Detroit. The main building—which covered sixty-seven acres, making it at the time the largest factory structure in the world—went up quickly, but getting production going was a whole other matter. The federal government and Ford proved not much better than the Soviets in starting up such a massive endeavor and faced similar problems in assembling a workforce in an area distant from existing pools of skilled labor (which, in any case, were too small to meet wartime demand).

Part of the blame for Willow Run repeatedly falling behind production schedules—which became a political hot potato—came from applying mass-production techniques to the manufacture of bombers. Creating specialized tools and fixtures delayed the start of parts making, usually done in the aircraft industry using standard machine tools. Repeated design changes from the Army impaired a manufacturing approach predicated on long runs of standardized parts. As in the Soviet Union, slow delivery of materials contributed to delays. So did repeated reorganizations and personnel changes in the federal defense agencies and managerial chaos at Ford. (Contrary to its rationalist public image,



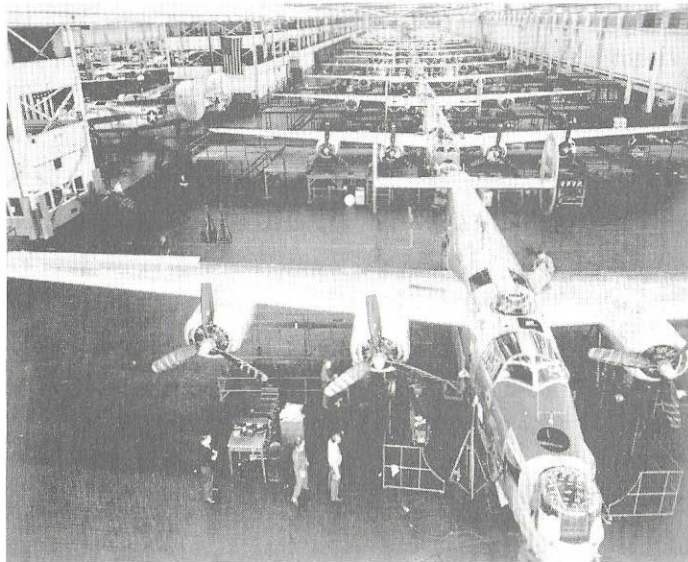


Figure 6.1 The B-24 Liberator assembly line at the Willow Run bomber plant in Michigan, circa 1944.

Ford suffered from personal fiefdoms, fierce competition among executives, and a lack of clear lines of responsibility.) But an inability to find and retain enough workers presented the biggest problem.

Across America, defense industries scrambled to find workers, especially with industrial skills. The location of Willow Run added a burden. As construction and production workers began flooding into the sparsely populated rural area, they found virtually no homes they could buy or rent, forcing them to room with local residents or live in trailers, tents, or jerry-built structures, shades of Gorky and Magnitogorsk.

The UAW proposed the construction of a ten-thousand-unit “Defense City,” a permanent new settlement to house plant workers. It commissioned Oscar Stonorov, a German-born modernist architect who had designed a union-sponsored housing complex in Philadelphia, to lay it out. (In 1931, Stonorov, with a partner, had taken second place in an international competition to design the Palace of the Soviets in Moscow, besting such celebrities as Le Corbusier and Walter Gropius.)

Defense City, and a similar plan by federal officials for a “Bomber City,” proposed multifamily structures and extensive communal facilities, social housing of the sort that had been pioneered in interwar Europe and tried at Gorky and elsewhere in the Soviet Union. Stonorov and his partner at the time, Louis I. Kahn (later famed for his modernist structures, and no relationship to Albert), produced striking designs for a variety of types of dwelling units. But nothing came to pass in the face of fierce opposition from local real estate interests, Ford, and even some union members who—like their Russian counterparts—preferred individual living (in this case single-family homes) to the communalism promoted by left-wing planners. Reversing gears, federal authorities quickly threw up prefabricated temporary dwellings, including—again shades of the U.S.S.R.—worker dormitories.

With living conditions difficult and jobs elsewhere easy to find, workers flowed out of Willow Run almost as fast as they flowed in. Most had little industrial experience, requiring considerable training before they could begin efficient work. Though at one point Ford projected a plant workforce of 100,000, in practice it peaked at 42,506, massive but not massive enough to meet production schedules. Reluctantly giving up the idea of Rouge-style total integration, Ford began moving some B-24 parts production to other plants and even did some subcontracting.

Eventually tools were finished, production methods perfected, and a large enough workforce trained to achieve high-volume output. By 1944, the plant turned out one plane every sixty-three minutes. When production ended in June 1945, the plant had manufactured 8,685 B-24s. Some were shipped out as kits for final assembly elsewhere, but 6,792 were put together on site and flown off, many almost immediately into action.<sup>5</sup>

No other aircraft plant tried as thoroughly to apply mass production methods, but industrial giantism characterized the wartime aviation industry as a whole. North of Baltimore, at Middle River, Glenn L. Martin employed even more workers than Willow Run, 45,000, mak-



ing B-26 bombers and PBM Mariner flying boats at a complex that included a huge Kahn-designed assembly building with the longest flat-span trusses ever used and massive lift-up doors that allowed airplanes to move in and out. On Long Island, Republic Aircraft Corporation swelled from a few hundred workers to more than 24,000 and Grumman Aircraft from 1,000 to more than 25,000. In the Seattle area, Boeing employed 50,000 workers, nearly half of them women.<sup>6</sup>

Wartime shipbuilding also depended on huge facilities and assembly-line methods. Until the war, ships had been custom-built by highly skilled workers, a practice that continued for naval vessels at facilities like the Bethlehem Steel shipyard at Sparrows Point, Maryland, which employed eight thousand workers. But for cargo ships, needed in massive numbers for the war effort, assembly line techniques were developed, including the standardization of design, extensive prefabrication of parts, the use of welding instead of riveting, and a highly developed division of labor. At Bethlehem's newly constructed Fairfield yard in Baltimore harbor, 45,000 workers, 90 percent of whom had never worked in a shipyard, produced over four hundred vessels during the war. On the West Coast, Henry J. Kaiser, a construction company owner new to shipbuilding, threw up a series of huge yards to produce Liberty ships and other vessels using mass-production methods. His Richmond, California, shipyard employed some 90,000 workers, making it one of the most populous industrial worksites in American history. To support his operations, Kaiser built the first integrated steel mill on the West Coast, in Fontana, east of Los Angeles; constructed new cities for his workers, like Vanport in Portland, Oregon, with homes for nearly ten thousand families; and expanded his prepaid comprehensive medical program, which he renamed Kaiser Permanente—altogether an American *Kombinat*. After the war, Kaiser leased the Willow Run plant from the federal government to produce automobiles for the newly established Kaiser-Frazer Corporation, which remained in the car business until 1955.<sup>7</sup>

Defense production—especially in huge factory complexes—

elevated the social prestige of the blue-collar worker, already raised by the substance and imagery of the New Deal and the great union organizing drives. Political, military, and labor leaders repeatedly stressed the importance of the industrial home front to victory, overlaying patriotism on the Promethean heroism already associated with the giant factory and the workers within it. Flags, bond sale rallies, blood drives, and collection points for British, Soviet, Greek, and Chinese relief made factories, mills, and shipyards into arenas of patriotic expression. Newsreels, billboards, and magazines celebrated war workers—female and male—for their skill and dedication, their ease in operating giant machines and building huge objects, their role in the defense of the nation. Workers responded to such publicity, higher income brought by steady work, unionization, and the tight labor market with a confidence evident in the many short wartime strikes, held in defiance of the union movement's no-strike pledge, and in a jauntiness that characterized the industrial workforce across the country. It could be seen in wartime photographs of industrial workers, like those Dorothea Lange took at the Kaiser Richmond shipyard. Though few realized it at the time, the war brought the giant factory and the blue-collar worker to their apogee in American life.<sup>8</sup>

### The Bounty of Unionized Industry

The end of World War II led to a rapid shrinkage of employment at defense plants, fears of mass unemployment, and a tectonic crash between workers and their employers. The immediate issue was the desire by workers for wage boosts to catch up with inflation and compensate for diminished hours once war production ended. But the larger question was the place of organized labor in the postwar world, the desire by unions to solidify their New Deal and wartime gains and by employers to check or roll them back. In the year following the end of the war, five million workers went on strike in the largest strike



wave in American history. At its height, in January 1946, two million workers were off the job, including 750,000 steelworkers, 175,000 GM autoworkers, 200,000 electrical manufacturing workers, and more than 200,000 meatpacking workers. Left-wing reporter Art Preis wrote from Pittsburgh of steel plants “sprawled lifeless,” while fires to warm pickets formed “a mighty chain up and down the valley and the river banks.”

A similar clash had taken place at the end of World War I. Unions had won some battles and lost others (including the steel strike), but, in the face of repression, an economic downturn, and a conservative political turn, the net result was a sharp decline in the size and power of the labor movement. The post-World War II strike wave proved a different story. Generally peaceful, with widespread public support, the big strikes ended with an eighteen-and-a-half-cent per hour wage increase (the equivalent of \$2.46 in 2017) or something close to it, a huge boost. For the only time, the United States effectively had a national wage settlement. Price hikes soon cut deeply into the wage gains, but the strikes marked just the beginning of a quarter century of dramatic improvements in pay and benefits for industrial workers.<sup>9</sup>

Before World War II, the newly formed industrial unions had not stressed wage rates, in part because in a deflationary period steady wages meant rising real income. Instead, they fought to check the power of management on the shop floor through union recognition, increasingly detailed contracts, shop stewards, grievance procedures, and the use of seniority in layoffs and jobs assignments. After the war, unions successfully pressed for wage increases and a growing array of employer-provided benefits, including health insurance, pensions to supplement social security, and supplementary unemployment insurance.

The cumulative result was a revolution in the daily lives of workers in large-scale industry, and for their families and communities. Steelworkers' union president Philip Murray once said that for working people a union meant “pictures on the wall, carpets on the floor and music in the home.” A quarter century after World War II, workers in heavily capitalized, unionized industry had achieved that and much more.

Things once unusual or unknown among workers—home ownership, modern appliances, vacations, cars and second cars, children sent to college, retirement while still healthy—became common. Unionism grew so established that in 1949 a critic in a left-wing newspaper could write that “In revealing the beauty of factory architecture, [Charles] Sheeler has become the Raphael of the Fords. Who is it that will be the Giotto of the U.A.W.?”

Higher income and welfare programs provided by the government and employers, including pensions, unemployment insurance, disability insurance, and health insurance, gave workers an unfamiliar sense of security and well-being. Many resented the high price they paid for their improved way of life, especially the continued, if diminished, authoritarianism of Fordist production, the monotony of assembly-line work, and the physical toll of manufacturing labor. Still, as Jack Metzgar, the son of a Johnstown, Pennsylvania, steelworker wrote of his family's experience, “If what we lived through in the 1950s was not liberation, then liberation never happens in real human lives.”<sup>10</sup>

## Dispersion and Downsizing

While for workers the 1945–46 strike wave launched a trajectory of material improvement and union power, for industrialists it brought home a lesson some had begun to glean during the strikes of the 1930s, the danger of extreme industrial concentration in large-scale facilities. Even before the burst of labor militancy in the mid-1930s, a few large corporations had begun to hedge their bets, building smaller plants to supplement their main production facilities. By the late 1920s, the big three tire makers, Goodyear, Goodrich, and Firestone, in addition to their giant plants in Akron, all had factories in Los Angeles to meet the demands of the West Coast market. In 1928, Goodyear built another tire factory, this time in Gadsden, Alabama, a low-wage, antiunion center far from any major tire market. The purpose seemed primarily to



lower labor costs and gain a threat to use against Akron workers. After the 1936 strike at the main Goodyear plant, the company expanded the Alabama factory. Other Akron firms also started decentralizing production. By 1938 the Firestone workforce in Akron had fallen from 10,500 to about 6,000, as the company shifted work to a factory it built in Memphis and to other outlying plants. The Goodyear Akron plant shed a fifth of its workforce.

Labor was not the only reason tire companies began dispersing production. Technological innovations and the increasing standardization of tire sizes made it possible to build mass-production plants that operated efficiently at smaller scales than the Akron monsters. As car ownership spread and population redistributed, siting plants near growing markets meant lower shipping costs.

But the biggest factor seemed to be a desire to stop being held hostage by small groups of workers. The sequential nature of tire production meant that if one department went on strike, a whole plant might be shut down. And that happened repeatedly in Akron, where sit-downs and other strikes, often begun without official union involvement, became endemic, as a volatile worker culture of direct action developed. In an October 1944 strike at the Goodyear factory, just four striking workers idled five thousand others.

When siting new factories, companies looked for locations where labor costs were lower and unionism was less likely to succeed, or at least be of a less militant sort. Repeated prewar efforts by the United Rubber Workers to unionize Goodyear's Gadsden plant and Firestone's Memphis plant failed, with a reign of terror in Alabama that included severe beatings of union organizers by company thugs and antiunion workers in cahoots with local law enforcement.<sup>11</sup>

The Radio Corporation of America (RCA) also reacted quickly to labor militancy. In 1936, a month-long strike, overcoming imported strikebreakers and police violence, led to the unionization of the company's two-million-square-foot complex in Camden, New Jersey, just across the Delaware River from Philadelphia, where 9,700 workers (75

percent female) produced nearly all of its products. Almost immediately, RCA began moving operations elsewhere, between 1936 and 1947 setting up a component plant in Indianapolis, a radio plant in Bloomington, Indiana, tube plants in Lancaster, Pennsylvania, and Marion, Indiana, a record plant in Hollywood, and a cabinet shop in Pulaski, Virginia. By 1953, only three hundred consumer-electronics jobs remained in Camden. The original complex continued to be an important center for the company, primarily for research and development and manufacturing military equipment, but all mass production of consumer goods had been scattered to smaller plants.<sup>12</sup>

General Motors likewise realized early the threat labor militancy presented to its integrated production system. A 1935 strike at its Toledo transmission factory forced the shutdown of every Chevrolet plant in North America. Soon after, the company launched a \$50 million program to expand and modernize its manufacturing, which included building new plants so that the interruption of production at one factory would not halt operations elsewhere. Most of the new factories, which included a plant in Muncie, Indiana, to duplicate the output of the Toledo factory, were in small towns or cities with weak union movements.<sup>13</sup>

The GM program came too late to block the UAW's triumph in 1937. The Flint sit-down and the strikes that followed reinforced the message about industrial concentration. While there might be economies of scale in producing every Chevy engine in a single plant or bodies for all GM cars of a particular body type in a single factory, when workers grew militant it brought danger, too.

No company, even giants like General Motors with huge financial resources, could quickly build factories to duplicate all the production of their most centralized facilities—plants like the Rouge or Dodge Main or the Chevy and Buick complexes in Flint. But World War II provided an opportunity to begin or further the process. As in the Soviet Union, national security dictated the siting of defense plants in the interior of the country, safe from bombardment. Warm weather



and vast empty expanses made the Southwest especially attractive to military planners. With government financing, the rubber companies built new tire plants to meet war needs in Iowa, Texas, Pennsylvania, Alabama, Oklahoma, and Kansas. After the war, Washington sold off the plants at bargain prices to the corporations that operated them. Other big wartime defense factories were sold, too, and converted to civilian production, like the North American Aviation bomber plant in Kansas City, Kansas (which had twenty-six thousand workers), taken over by General Motors to assemble cars and, briefly, jet fighters, and the Louisville, Kentucky, war plant that became the nucleus for General Electric's "Appliance Park."<sup>14</sup>

The postwar strike wave provided further impetus for industrial relocation and more but smaller plants. The country had never seen anything like it before. Not only were the strikes huge, they were highly disciplined, with very few workers breaking ranks, even as some of the walkouts dragged on and on, GM for 113 days, textile workers for 133 days, glass workers for 102 days. Corporate leaders found deeply disturbing the support the strikers won in industrial centers. In steel towns, where for a century local officials, newspapers, and businesses had backed the companies in their clashes with labor, now they stayed neutral or supported the strikers. Striking electrical workers won support from college students, the mayors of Cleveland and Pittsburgh, and fifty-five members of Congress. Veterans played a conspicuous role in many of the postwar walkouts, lending them moral capital earned on the battlefields. In Bloomfield, New Jersey, which housed both GE and Westinghouse factories, the local branch of the American Legion, a notoriously conservative group with a history of antiunionism, backed the strikers, even though leftists led their union. In Chicago, pharmacies and grocery stores extended credit to striking packinghouse workers, while priests joined their picket lines. The Truman administration vacillated in its handling of the walkouts, but it took the legitimacy of unionism for granted and ultimately used federal power to force the major corporations to grant large wage hikes.<sup>15</sup>



Figure 6.2 Pittsburgh Mayor David L. Lawrence addressing a crowd of Westinghouse strikers in April 1946.

The strikes made painfully clear to manufacturing companies that they no longer controlled the physical, social, and political environments in which their largest factories operated. GE president Charles Wilson bitterly complained in congressional testimony that strikers had kept even nonunionists—managers, scientists, and office workers—from entering struck facilities. "I don't think a corporation should have to go with its hat in hand to a union and ask permission to bring its engineers and so on into a plant." Politics and daily life in industrial communities changed as prounion politicians got elected to local and state office, small businesses allied themselves with their working-class customers, and unions injected themselves into all aspects of civil life, from the Community Chest to recreational sports to cultural activities. In Yonkers, New York, manufacturing companies like Otis Elevator and Alexander Smith, which, with a peak workforce of seven thousand workers at its massive mill, was the premier carpet manufacturer in the United States, had effectively controlled the town. But after



the war, decisions about taxes and public policies became subjects for debate, with a well-organized, ambitious local labor movement throwing around its weight. Giant industrial complexes, once fortresses of corporate power, had become hostages to communities of workers in dense urban centers, where working-class solidarity developed in ethnic organizations, veterans groups, churches, bars, bowling alleys, and social venues, as well as within factory gates.<sup>16</sup>

GE had the most multifaceted response to the upsurge of union power in and around its leading factories. After the 1946 strike, the company named a public relations expert, Lemuel R. Boulware, as vice president of employee and community relations. Boulware took a hard line toward unions, in negotiations presenting the company's offer as a take-it-or-leave-it proposition, while arguing its reasonableness through newspaper advertisements and other media to employees and residents in the towns where GE plants were located. In addition to promoting the virtues of the company, Boulware worked to educate GE workers and the general public about the merits of free-market capitalism, hiring Ronald Reagan to be a spokesperson for the firm in its ideological offensive. GE's efforts, though unusually extensive, were part of a broad corporate campaign to reshape public thinking about the economy, an extended drive to counter the ideological and political impact of the New Deal.<sup>17</sup>

GE and other electrical equipment manufacturers also started transferring operations out of their large factories to smaller plants located in the South, the border states, the West Coast, rural New England, the Midwest, the mid-Atlantic region, and Puerto Rico. The resulting drop in employment in older factories could be very substantial. When GE transferred some of the production of small home appliances from its Bridgeport, Connecticut, plant to new factories in Brockport and Syracuse, New York; Allentown, Pennsylvania; and Asheboro, North Carolina; the workforce shrank from 6,500 to less than 3,000. At the historic GE Schenectady factory, which produced heavy-current products and at its height during World War II employed 40,000 men and

women, the workforce plummeted from 20,000 in 1954 to 8,500 in 1965, as the company shifted work to plants in Virginia, Indiana, Maryland, New York, Vermont, and California.<sup>18</sup>

Multiple reasons figured in the dispersals. In the case of GE, building geographically distributed plants was linked to a corporate reorganization, which created decentralized product divisions. As had begun before the war, many companies built plants to be near growing markets, especially in the South and West, facilitated by improvements in transportation, communication, and air conditioning. Modernization sometimes necessitated relocation. In cities like Detroit, few large empty tracts of land with good railroad connections (necessary for producers of large products, like automobiles) remained. As manufacturers sought to replace old, multistory plants with single-story facilities, with room for truck-loading docks and employee parking, they often turned to suburban sites, small or medium-size cities, or even rural areas, where large tracts were readily available. Government incentives also came into play, including tax breaks, tax-free industrial development bonds, and labor training programs, all widely used by Southern states to attract Northern industry.<sup>19</sup>

In the large, theoretical literature on industrial location, labor rarely gets much attention. Differential wage rates are sometimes considered, but the presence or absence of militant workers and unions almost always is ignored.<sup>20</sup> However, in practice, labor often was a key factor in corporate decision-making. One guidebook "for executives charged with evaluating the placement of a company's productive capacity" frankly and matter-of-factly noted an "informal decision rule that some corporations follow is no plant which is unionized will be expanded on-site," a dictum "grounded in management's concern for maintaining productivity and flexibility at its facilities." When companies embarked on major expansions, rather than enlarging unionized plants they generally built new ones, "often new locations in right-to-work states." GE publicly justified its downsizing of older plants and job relocations as an effort to remain competitive with companies using low-wage Southern



labor, but privately Boulware discussed it, along with speedup, as a way to discipline the workforce.<sup>21</sup>

Some large corporations with national union contracts faced opposition when they began moving production to areas hostile to organized labor. In 1960, striking workers sought a contractual measure limiting the ability of GE to shift work from Northern plants to the South, but the company rejected the idea and the walkout proved a dismal failure. A decade later, the UAW took on the same issue when it accused GM of a "southern strategy" in building parts plants in Louisiana, Alabama, Georgia, and Mississippi and an assembly plant in Oklahoma City. Ultimately, all the GM plants were unionized, but many companies, like RCA, found that in moving out of established factories to new communities they might end up with unions, but weaker and less militant unions than they were leaving behind.<sup>22</sup>

Not all new plants were smaller than the ones they replaced or partially supplanted, but most were. Sometimes this reflected a desire to multisource intermediate or final products, building plants for just some of the production previously done at a larger factory. Automation also led to downsizing. Many manufacturers embraced new technologies after World War II that allowed machines to be self-regulating and perform tasks that previously required human labor. Motives included greater precision and speed and the elimination of physically onerous tasks. But a desire to lower labor costs and reduce the power of workers contributed significantly to the automation drive.

In the automobile industry, Ford took the lead. Setting up an "Automation Department," the company began shifting work out of the Rouge, which had one of the most militant UAW locals in the country and where wildcat strikes and slowdowns remained common. The labor savings proved considerable. In the mid-1950s, the company transferred production of Ford and Mercury engines from the Rouge to a newly automated plant in Cleveland. It also built a plant in Dearborn to make Lincoln engines. At the Rouge, it had taken 950 workers to make piston connecting rods, but at the Cleveland and Lincoln plants it required

only a combined workforce of 292. During the 1950s, Ford transferred many other operations out of the Rouge to more automated plants, including stamping, machine casting, forging, steel production, and glassmaking. As a result, employment at the Rouge shrank from 85,000 in 1945 to 54,000 in 1954 to 30,000 in 1960, making it still one of the largest factories in the United States though only a shadow of what it had been in its heyday.<sup>23</sup>

Dodge Main underwent a similar metamorphosis, as the Chrysler Corporation deintegrated, decentralized, and automated production. From a peak of 40,000 workers during World War II, the plant production workforce shrank to 8,300 in 1963. With parts production moved elsewhere, the sprawling plant housed little more than assembly operations. When, in 1980, the company shuttered it completely, only 5,000 men and women remained.<sup>24</sup>

Automation and mechanization contributed to an impressive rise in productivity. During the quarter century after World War II, employment in the automobile industry plateaued at three-quarters of a million, while output roughly doubled. Between 1947 and 1967, total employment by manufacturing enterprises rose 27 percent, while value added (adjusted for inflation) jumped 157 percent. More efficient management and speedup accounted for some of the boost, but new plants and equipment figured heavily.

Large factories continued to be built; in 1967 there were 574 factories in the United States with 2,500 or more workers, compared to 504 twenty years earlier.<sup>25</sup> But companies rarely erected the kind of giant, showcase plants that had sprung up across the manufacturing belt in the late nineteenth and early twentieth centuries. GE's Appliance Park in Louisville—where the company manufactured refrigerators, washers, driers, electric stoves, dishwashers, disposals, and later air conditioners—was something of an exception. Begun in 1951 on a 700-acre site (eventually expanded to 920 acres), the heavily landscaped complex included six factory buildings, a research and development center, a warehouse, and its own powerhouse. It even had its own zip



code. With 16,000 workers in 1955 and 23,000 at its peak in 1972 (15,000 union represented), the complex was large by any standard. But it never reached the size of the workforce at the company's Schenectady complex during its heyday and was only a fraction of the one-time size of such giants as the Rouge and Dodge Main.<sup>26</sup>

### The Disappearing Worker

With the shrinkage of the giant factory and broad social changes, the industrial worker faded in popular culture and political saliency. For a brief period after World War II, the media still paid attention. In 1946, *Fortune* sent Walker Evans to photograph the Rouge for a story on "The Rebirth of Ford."<sup>27</sup> One early television show, *The Life of Riley*, featured a Los Angeles airplane worker, occasionally showing the lead character, played first by Jackie Gleason and then by William Bendix, in a factory, riveting wings and complaining about work and the pretensions of the rich (though most episodes revolved around domestic doings). The show lasted until 1958. Blue-collar workers would not again appear regularly on television screens until the 1970s.<sup>28</sup>

With white-collar workers beginning to outnumber blue-collar workers in the mid-1950s, and unions increasingly integrated into established economic and political relationships, intellectuals, too, largely lost interest in the men and women working inside the biggest industrial plants, or at least no longer saw them as key to the future. Left-wing scholars like Mills and Marcuse and many of their followers in the New Left abandoned the idea that the industrial proletariat would act as an agent for progressive social change. While in 1972 there were 13.5 million manufacturing production workers in the United States (more than two million of them working in facilities with 2,500 or more workers), one-time socialist Daniel Bell, a leading sociologist, announced in a book the next year, *The Coming of Post-Industrial Society*. For Bell and many others, "knowledge workers" or "symbolic

analysts" had elbowed aside blue-collar workers to constitute the key economic group.

In the late 1960s and early 1970s, there was a brief flurry of political and cultural interest in the discontent of industrial workers—the so-called "blue-collar blues"—but an economic downturn quickly put an end to that. The next time factory workers captured public attention, they did so as a result of deindustrialization and the massive social crisis it brought to the "rust belt." Between 1978 and 1982, employment in the automobile industry fell by a third, with more than three dozen factories shuttered in the Detroit area alone. During those same years, the steel industry shed more than 150,000 jobs. Bethlehem cut ten thousand jobs at Sparrows Point and phased out operations in Lackawanna, New York, and Johnstown, Pennsylvania. U.S. Steel eliminated twenty thousand jobs in Gary, devastating the city, and in 1986 shut down the historic Homestead mill. The worker in the giant factory, once a heroic figure, mastering volcanic forces and massive machines, at least in the United States came to be seen as an atavism, a problem, a sad relic of a passing age.<sup>29</sup>

### Soviet Giantism Marches On

As American companies downsized and dispersed their factories, in much of the rest of the world giant industrial complexes continued to be built and celebrated. After World War II, the Soviet Union revived the model of the outsized production facility with an accompanying worker city. Under Soviet influence, the *gigant* model spread to Eastern Europe and China. On the other side of the Cold War divide, the giant factory remained alive and well, too, in parts of Western Europe and some developing countries. As before the war, very large scale industrial complexes were seen as a quick means of economic advance and an efficient investment strategy, especially in countries with centralized planning mechanisms. They also continued to serve important ideo-



logical and cultural functions, as carriers of ideas about modernity and the good life and a means of asserting national pride. While in the United States the industrial behemoth was becoming associated with the past—a receding era pictured in black and white—in much of the rest of the world the giant factory remained associated with the future.

The Soviet Union, after being devastated by World War II, initially concentrated on reconstruction. Giant factories like the Stalingrad tractor plant were rebuilt, in many cases continuing to produce military equipment while also resuming the manufacture of civilian goods. Unlike their counterparts in the United States, Soviet managers did not worry about worker militancy or the risk of workers using industrial chokepoints to assert their power.

Magnitogorsk, after playing a vital role in the war effort, doubled in size during the 1950s and 1960s. By the late 1980s, it was the largest steelmaking complex in the world, with 63,000 employees, 54,000 directly connected to steel production, annually putting out almost as much steel as Great Britain. New large-scale infrastructure projects were launched as well, of the sort associated with the First Five-Year Plan—canals, dams, power stations, and irrigation systems—“the giant construction projects of communism.”<sup>30</sup>

In the late 1940s and 1950s, the U.S.S.R. also built a series of new cities, variants of the industrial *gigant* model, as centers for scientific research and nuclear weapons production, like Ozersk in the Urals, which housed the huge Maiak plutonium plant. The scientific and atomic cities, in many cases constructed in part by prison labor, like Magnitogorsk were self-contained settlements, with schools, cultural institutions, and housing estates linked to large employers. Many were closed cities, with no access for nonresidents and sometimes no exit for residents, secret places that literally did not exist on maps or in directories.<sup>31</sup>

When the Soviet Union sought to up the production of civilian goods, belatedly embracing the idea of consumer society, its leaders,

many of whom had begun their careers with technical training and as factory managers, turned to the giant factory for that as well. For their generation, the First Five-Year Plan had been a formative experience. During his 1959 tour of the United States, Premier Nikita Khrushchev recalled—probably to blank looks from the Americans around him—“when you helped us build our first tractor plant, it took us two years to get it going properly,” an episode still vivid in his mind a quarter century later.<sup>32</sup>

In the mid-1960s, the automobile industry once again took the forefront in Soviet industrialization. Vehicle production had languished in the Soviet Union as the military and other industries ranked higher for investment. Also, some communist leaders, most notably Khrushchev, favored mass transit over private car ownership. In 1965, the country manufactured only 617,000 vehicles, mostly trucks and buses, paling before the 9.3 million cars that poured out of U.S. factories. Following Khrushchev’s ouster, Soviet leaders set out to jump-start the vehicle industry by returning to the methods of their youth, in 1966 signing an agreement with FIAT for technical assistance and training for a huge new factory to mass produce a version of a current FIAT model. It was the most important foreign commercial contract the country had signed since the deal with Ford decades earlier (which in monetary terms it surpassed).

The Soviets located the plant in Togliatti, a small city on the Volga River that had recently been renamed for the deceased Italian communist leader. Though the site was not selected primarily because of the link to Italy, both sides made the most of the connection, portraying the new plant as an exemplar of Italian-Soviet friendship. The vertically integrated plant, which included its own smelter, eventually covered more than a thousand acres. When it began operation in 1970, it had over 42,000 employees, including nearly 35,000 production workers, with a majority under the age of thirty. The workforce kept growing, reaching an astounding 112,231 (46 percent female) in 1981.



To house the workers and their families, the Soviets created what amounted to a new city, Avtograd. In something of a reprise of the 1930s, young workers from all over the Soviet Union came to build the plant and city (in this case without prison labor). Like other Soviet factory cities, extensive club and sports facilities, schools, libraries, and day-care centers were provided, with the factory taking charge of everything from the local hockey team to a military museum. What made the city unusual, though, were the extensive accommodations made for cars, a novelty in a country where individual automobile ownership always had been rare.<sup>33</sup>

The Soviet government launched a second giant vehicle factory, KamAZ, to build heavy duty trucks in Naberezhnye Chelny, along the Kama River in Tatarstan. One hundred thousand workers were mobilized to build the plant. The Soviets purchased much of the equipment to make a projected 150,000 trucks and 250,000 engines annually from foreign firms. Later, the factory added minicar production. The adjacent city grew to a population of a half million.<sup>34</sup>

The latter-day Soviet vehicle-making giants lasted until the end of the U.S.S.R. itself and beyond. At the start of the twenty-first century, the Togliatti auto company, renamed AvtoVaz, still employed some 100,000 workers (some outside the city). After the company was privatized and looted by managers, oligarchs, and criminal gangs to the point of near collapse, Renault and Nissan eventually obtained majority control. When they began cutting the workforce and reorganizing the plant in 2014, it still had 66,000 employees, far more workers than at any U.S. factory and, with the exception of the Rouge, more workers than had ever been employed at an American auto plant. In a deeply troubled economy, excess staffing served a social-welfare function difficult to disrupt. KamAZ (with Daimler AG buying a minority stake in 2008) kept going, too, producing its two-millionth truck in 2012.<sup>35</sup> Stalinist giantism lived on in Russia long after the statues of Stalin, and the country he helped build, disappeared.

## First Cities of Socialism

In the late 1940s, as the Soviet Union helped the communist parties of Eastern Europe consolidate their control, it fostered on the region its template of model socialist cities built around large-scale industrial projects. As had been the case in the U.S.S.R., the motive was partly economic, to promote accelerated growth through concentrated investment in heavy industry. Most of Eastern Europe never had much industry, except parts of East Germany and Czechoslovakia, and much of what there had been had been destroyed during the war or, in the case of Germany, taken by the Soviet Union as reparations. But showplace industrial-urban complexes served important political and ideological functions as well. The Eastern European communist parties were very small when World War II ended, able to achieve power only because of the presence of the Red Army. Communist leaders faced a huge challenge in establishing their legitimacy, mobilizing the population for reconstruction (Germany and Poland, in particular, had suffered massive destruction), and winning popular favor for their Soviet protectors. Model industrial cities, forerunners of new socialist societies, were meant to serve all these functions.<sup>36</sup>

Several of the cities supported new steel plants: Stalinstadt in East Germany, Sztálinváros in Hungary, Nowa Huta in Poland, and Nová Ostrava in Czechoslovakia, part of what one historian dubbed a "cult of steel" linked to the cult of Stalin (whose adopted name meant "man of steel"). Communist leaders saw steel as key to industrial development and arms production, a priority as the Cold War settled in. Breaking the pattern, Bulgaria built its model city, Dimitrovgrad, around a large chemical plant (named after Stalin) and a big power plant. Dimitrovgrad and Stalinstadt also had cement plants, supplying a favored construction material in the Soviet Bloc.<sup>37</sup>

Launched with great fanfare, the new factories and cities were presented as the first living embodiments of what socialism would be, part and parcel of a valorization of industry and workers seen in the iconog-



raphy and rituals of the new people's democracies. The 100-zloty note issued in Poland in 1948 featured a picture of a miner on one side and an industrial landscape, with rather old-fashioned factory buildings and belching smokestacks, on the other (quite a contrast to the American one-hundred-dollar bill, with Benjamin Franklin on one side and a pastoral view of Independence Hall on the other). Governments called for heroic efforts to rapidly build the industrial settlements. Youth brigades were organized for short-term labor and full-time workers recruited mostly from rural areas. Most workers were young, their presence offered as evidence of the promise of the new societies.

Though each model city had distinct features and a distinct history, reflecting national circumstances, they shared many characteristics. Their planners and architects all consulted with Soviet specialists about overall layouts and even individual buildings. The most striking thing about the new cities was not their socialism but their urbanism. Initially, some of the plans envisioned dispersed housing, eliminating a hard boundary between countryside and city and providing green space and areas for growing food. But the planners quickly switched gears, moving toward higher density, with a concentrated population and no garden plots within city boundaries.

Several factors explain the shift. First, cost. Building apartment blocks, often of standardized design and in many cases using prefabricated materials, was cheaper than constructing many small dwelling units, an important consideration for countries with vast housing needs. Second, compact, dense cities made it easier to provide extensive social and cultural services, important features of cities meant to prefigure what socialist life would be like. Third, the urbanism of the industrial cities constituted an explicit rejection of the postwar vogue in the capitalist West for dispersion: British new towns, Scandinavian satellite towns, American suburban sprawl. (Divided Berlin became a showplace for competing planning visions: density and continuous streetwall in the East; greenswards, lower density, and dispersed buildings in the West.) Grand boulevards and large squares were featured as sites for

parades and rallies, but there were smaller-scale urbanist gestures, too, like arcades. The industrial cities were meant to represent modernity, newness, gateways to the future. Anything that smacked of the old rural village, with its individual ramshackle houses and garden plots, seemed a reactionary repudiation of the very spirit of the enterprise.

Though they owed their existence to the Soviet Union, the Eastern European showcase cities served as centers of nationalism. Ritualist expressions of friendship with the Soviet Union abounded, in monuments, buildings donated by the Soviets, statues of Stalin, and the naming of some of the cities and factories for Soviet leaders. But the settlements were projected as vehicles of nation-building, albeit socialist nation-building, not of an abstract, generic socialist revolution. Socialist realism, a forced import from the Soviet Union, ironically furthered this by promoting the somewhat vague idea that buildings should be socialist in content but national in form. Accordingly, many of the buildings at the new factory sites and accompanying cities incorporated motifs and styles associated with national pasts. Building socialism, figuratively and literally, was portrayed as a *national* drama.

Most of the industrial showcases were never finished, at least as originally planned. Stalin's death in 1953 loosened the Soviet reins in its satellite bloc and ended the need for ritualistic deference to the Soviet dictator. Building large industrial facilities and new cities at breakneck speed proved very expensive. What once seemed like economies of scale in concentrating investment on large-scale projects, which were meant to stimulate broader economic development, no longer looked so favorable, as the distorting effects of putting so much financial and political capital into just a few sites became evident. A few years after they were begun, plans for the industrial centers were cut back or abandoned, and what growth did occur generally was improvised and haphazard. Most of the "first cities of socialism" quickly faded into obscurity, renamed and largely forgotten, except as kitschy remnants of the Stalin years.<sup>38</sup>

But not Nowa Huta ("New Mill"), site of the largest and most important of the new factories, arguably the last Stalinist utopia. The



idea for a steelworks in central Poland predated World War II and the communist regime. In 1947, the Polish government ordered plans for a large mill from Freyn Engineering, the same U.S. firm that had done work in the Soviet Union, including at Magnitogorsk. But the intensification of the Cold War led to the cancellation of the contract. A 1948 economic agreement with the U.S.S.R. and the creation, the following year, of the Council for Mutual Economic Assistance, linking the Soviet Union and the Eastern European states, provided the framework for a new start. This time the Poles worked with the Soviets, who pressed for a very large facility that would serve the whole communist bloc, much larger than the steel plants around which other model cities in the region arose. The U.S.S.R. lent Poland \$450 million to build the plant (a substitute for funds that might have been lent by the United States if the Soviet Union had allowed the Eastern European nations to participate in the Marshall Plan), picked a site six miles east of Kraków, designed the equipment and built much of it, trained 1,300 Polish engineers in Soviet steel plants, and sent skilled workers and specialists to help get the factory going, taking on many of the roles foreign companies had played in the Soviet Union two decades earlier.

In the Stalinist spirit, the government made a crash effort to rapidly build the Nowa Huta plant (later named the Vladimir Lenin Steelworks), the lead project in the Polish Six-Year Plan (1950–55). The sprawling enterprise, on a 2,500-acre site, ultimately encompassing five hundred buildings (including its own power and heating plants), grew in stages over several decades. It began operations with its first blast furnace in 1954. More blast furnaces, coke ovens, a sintering plant, and open-hearth and electrical steel converters followed. By the time the cold-rolling mill went on line in 1958, the plant had 17,929 employees, producing 1.6 million tons of steel a year (half of what twenty-three Polish steel mills had produced before the war), much of it exported to the Soviet Union. And the complex kept growing, with more coke ovens and open-hearth furnaces, a pipe-welding operation, a galvanizing mill, and a basic oxygen steel mill (by this time with some of the equip-

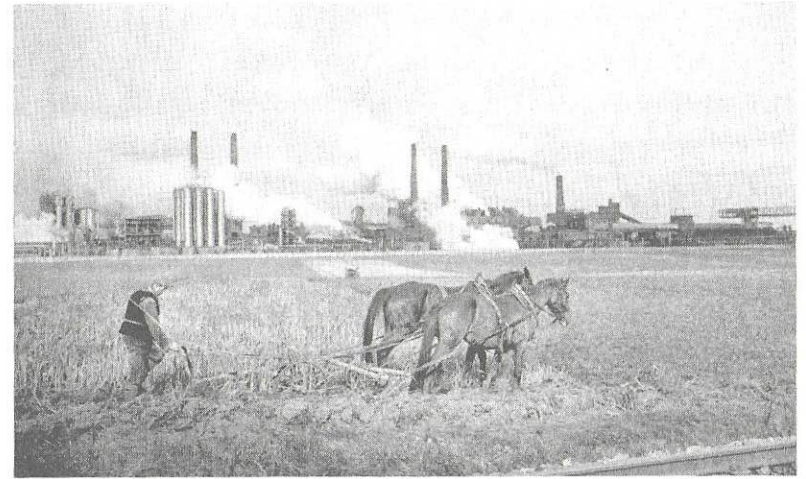


Figure 6.3 Uneven and combined development in Poland, as shown in Henryk Makarewicz's 1965 photograph of the Lenin Steelworks.

ment imported from the West). In 1967, a fifth blast furnace opened, one of the largest in the world and bigger than anything in the Soviet Union, and the plant's workforce reached 29,110. One Polish account argues that the continued expansion of the plant was "clear evidence of the authorities' love of grandeur—motivated more by politics than by economy," with the giant blast furnace, which required anthracite coal, a poor investment. New slabbing and rolling mills followed. Annual output peaked in 1978 at 6.5 million tons of steel and employment a year later at 38,674 (a larger workforce than ever seen at an American steel plant, though smaller than at Magnitogorsk).<sup>39</sup>

Though like the mill, the city of Nowa Huta stood as a national priority, its construction proved a long, difficult haul. While heavy equipment was used in building the steelworks, limited funds meant that the residential and commercial area was largely built by hand, with shovels, wheelbarrows, and occasional cranes. Material shortages and mismanagement slowed construction, while the poor quality of building supplies led to later problems. Authorities used agitation campaigns, labor competitions (which pitted workers against one another), and extra



voluntary labor to push the pace of construction at what was dubbed the “great building site of socialism.” Women were hired in large numbers, at both the mill and in the construction effort, to promote sexual equality and help meet the demand for labor. Many held blue-collar jobs traditionally reserved for men, like the all-female casting crews in the mill and the bricklayers and plasterers in the city. With housing construction lagging behind the growth of the steel mill and the flood of arriving workers, for years most people in Nowa Huta had to live in crude, cold, single-sex barracks, sometimes with over a dozen men or women sharing a single room, lacking basic sanitary provisions. *Magnitogorsk redux*.<sup>40</sup>

But by the mid-1950s, the housing shortage and generally miserable living conditions began to ease. Between 1949 and 1958, workers built 14,885 apartments in Nowa Huta, with the original plan essentially completed two years later, as the population reached 100,000. Many residents came to view the city quite favorably.<sup>41</sup>

The pre-1960 part of Nowa Huta forms half an octagon, with major boulevards radiating out from a central square on one edge (in 2004 renamed after Ronald Reagan). The steel mill gates are a half mile away, far enough so that the plant is barely visible from the center of the city, though, no doubt, in its heyday smoke from the mill, a notorious polluter, could have been seen. A tramline connects the mill and the original housing and commercial district.

A distinct urbanism characterizes the city center, reinforced by the appropriation of elements of Renaissance design, like galleries and squares, a marked contrast to contemporary residential developments in the United States of roughly the same size, like Levittown, New York, and Lakeland, California, with their small, single-family, detached houses and automobile-based design. Apartment buildings line the main avenues and fill the areas between them, organized into clusters designed for five to six thousand residents. From along the avenues, the long facades of the housing blocks, ranging from two to seven stories high, feel ponderous, but behind them are enclosures, quiet and

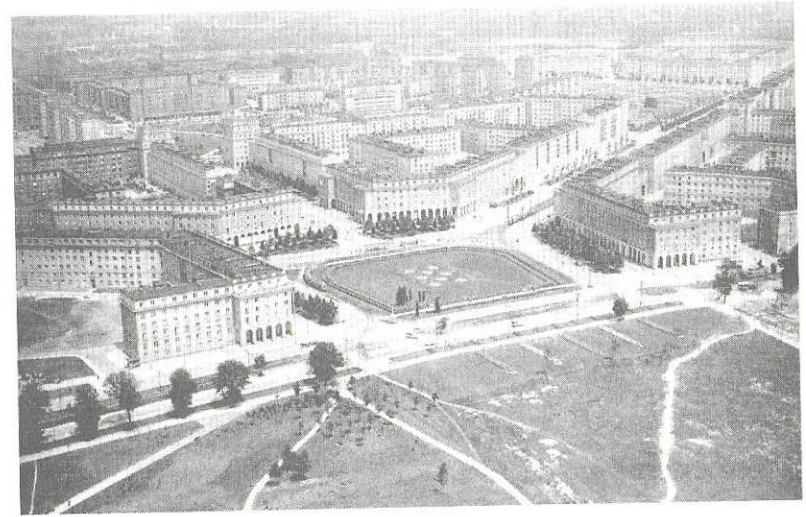


Figure 6.4 An aerial view of Nowa Huta.

humanly scaled, with little traffic. Lawns, playgrounds, schools, day-care centers, garages, and clotheslines fill the space. Each neighborhood unit was meant to be largely self-sufficient, with stores on the ground floors, health centers, libraries, and other services. Cinemas, a theater, a department store, restaurants, and public institutions generally were within walking distance from the residences, while a tramline provided a connection to Kraków proper (which in 1951 administratively absorbed Nowa Huta). The social organization in effect constituted a more fully realized, if less radical, embrace of communal life along the lines of the early worker housing in Gorky.

Plans for Nowa Huta kept being changed, in some ways to the benefit of the city. The first housing units were quite basic, but, keeping with the idea of Nowa Huta prefiguring a new socialist society, many of the estates that followed were built to standards far above the norm for ordinary Poles, with more space, private bathrooms, built-in radios, shared telephones in every entryway, cooling cupboards, and balconies. The blocks completed in the first half of the 1950s had a generic, socialist realist stodginess, but their lower height and smaller scale com-



pared to similar housing elsewhere, like along the Stalinallee (now Karl-Marx-Allee) in East Berlin, avoided the monumentality sometimes wrongly attributed to the city. Contributing to the human scale was the abandonment of plans for an unattractive, towering city hall and a monumental theater, meant to bookend the central axis. Efforts to incorporate traditional Polish elements ranged from the charming, like the octagonal cupolas on the small Ludowy Theater (which housed one of the most innovative theater companies in the country) to the absurd, like one of the two factory administration buildings, built to resemble a Renaissance palace with a "Polish parapet."

With Stalin's death, greater variety crept into Nowa Huta housing, including the modernist "Swedish house" apartment block, derivative of Le Corbusier. Cost-cutting, however, led to the elimination of such features as elevators and parquet floors. As the city population grew to exceed original expectations, new housing estates were built on the outskirts of town. Many of these were modernist in appearance but of poor-quality construction, with low- and high-rise buildings separated by green space, with few nearby stores or amenities, the sort of "tower in the park" developments that became the vogue for urban housing in both the communist and capitalist blocs.<sup>42</sup>

Meant to be a showcase for socialist Poland, Nowa Huta garnered national and even international attention. Over the years, visitors included Khrushchev, Charles de Gaulle, Haile Selassie, Kwame Nkrumah, and Fidel Castro. The steelworks and town figured in numerous novels, journalistic accounts, films, and even musical compositions. The mill appeared on postage stamps in 1951 and 1964. Generally, propaganda and artistic renderings presented Nowa Huta extremely positively, as the start of a socialist future, "the pride of the nation," "the forge of our prosperity." But having been elevated by communist authorities to a prominent place in the national narrative, it also became a pole for critiques of the socialist project. Adam Wazyk's sensational 1955 "Poem for Adults," openly critically of Polish socialism (by a writer until then known as a communist hardliner), painted an ugly portrait

of Nowa Huta ("a new Eldorado") and its residents ("A great migration, carrying confused ambitions, . . . A stack of curses, feather pillows, a gallon of vodka, a lust for girls"). Andrzej Wajda's acclaimed film *Man of Marble*, released in 1977, used Nowa Huta for a wrenching, clear-eyed look back at the history and mythology of Polish communism, prefiguring the revolution that would soon come to the steelmaking city, the nation, and the whole communist bloc.<sup>43</sup>

### Socialist Citizens

Like their Soviet predecessors, the showcase industrial cities of Eastern Europe were meant to not only produce steel, concrete, and other vital supplies, they also were to produce new men and women, templates for the socialist citizens of the future. One youth brigade in Bulgaria chose as its motto "We build Dimitrograd, and the town builds us." But the lived reality proved far more complex.

Some workers did move to Nowa Huta and the other showcase cities out of genuine enthusiasm for the socialist project and the new people's democracies. And some found the experience of helping build and launch new factories and cities intoxicating, something they would look back on fondly. But many workers joined the construction efforts and took jobs at the new plants not out of any particular ideological identification but from necessity.

As in the Soviet Union, the recruitment of construction and industrial workforces was intimately connected to miserable conditions in the countryside, the result of increased taxes, dictated crop sales, collectivization, long-standing poverty, and the impact of years of war. Many rural Hungarians who moved to Sztálinváros were hostile to the communist government because of policies they saw as attacks on their home villages and way of life. The lack of any church in Sztálinváros added to their alienation. For at least some, Sztálinváros came to be seen not as a beacon to a brighter future but as a symbol of everything that



was wrong with the socialist state. Experienced industrial workers who came to the pioneer Hungarian city had a more positive view, appreciating the better housing and higher wages available than elsewhere, but nonetheless they often resented the autocratic management in the plant, the intensity of the labor, and the ongoing shortages of food and other goods.<sup>44</sup>

Poland, with the tacit approval of the Soviet Union, did not attempt to collectivize agriculture, so there was no direct link between forced displacement and worker recruitment for Nowa Huta. Nonetheless, the bulk of the construction force and city population came from the countryside, mostly people under the age of thirty. Even in the steel mill, where many jobs required industrial skills, in 1954, 47 percent of the workers came from peasant backgrounds. Many were landless peasants from the immediate area. "Looking into the future," historian Katherine Lebow wrote, "they saw a life of relentless drudgery and cultural marginalization and found the prospect intolerable." More pushed out of their old life than drawn to a vision of a new one, they hoped that Nowa Huta would provide an opportunity to gain skills and money, escape the boredom of rural life, and achieve a brighter individual future. As later remembered by trade unionists, the attraction was not any pride in the idea of working in the country's leading industrial establishment but the desire to enjoy the superior wages, housing, and privileges offered in Nowa Huta once it got past its start-up difficulties.<sup>45</sup>

For many newcomers, Nowa Huta, especially in the early years, proved a disappointment, with its challenging living and working conditions, including high rates of industrial accidents. Many simply left, creating a serious problem of labor turnover (also the case in other showcase cities). Rather than Nowa Huta forging socialist men and women out of peasant stock, the opposite seemed to be happening, as what the communists saw as ills of rural backwardness infected the city. Same-sex barracks, a very large cohort of young men but far fewer women, and the paucity of entertainment, recreation, or religious opportunities

led to boredom and rowdiness. Alcoholism became epidemic, despite drastic efforts by authorities to control it. With it came a great deal of brawling and sexual assault, lumped by communist officials into the category of "hooliganism." With civil and familial authority thin and religious authority absent, sexual freedom (and venereal disease) flourished, to the dismay of government officials. And when former villagers did adopt a kind of modernity, it was not necessarily the kind authorities wanted. Some young men became *bikiniarstwo* ("Bikini boys," named after the bomb site, not the bathing suit), who adopted dress and hairstyles modeled after American youth culture.

Similar problems arose elsewhere. In Dimitrovgrad, former peasants took over public parks and courtyards to plant vegetables and raised goats, chickens, and rabbits in the cellars of apartment blocks, until communist authorities finally managed, during the 1960s, to stop the urban farming. In Sztálinváros, young factory workers from urban backgrounds brawled with construction workers from the countryside.<sup>46</sup>

Communist authorities wrung their hands over the behavior and attitudes of the working class they were creating and intensified efforts to inculcate socialist urbanity. In private and sometimes even in public, they acknowledged that the leap to socialist personhood was not taking place as planned. But as long as misbehavior remained outside the political realm, they took no drastic action.

Serious political trouble first occurred in Sztálinváros, not as a reaction to conditions specific to the steel mill but as part of the 1956 Hungarian Revolution. Sztálinváros became a center of revolutionary action, with a workers' council challenging government authority. After troops fired on a demonstration, killing eight, workers fought back, forcing the soldiers to retreat and seizing the local radio station. Later, when the Soviet army arrived to pacify the city, workers joined defecting Hungarian soldiers and officers to defend what its citizens had renamed Dunapetele, the name of the village that had preceded the steelworks. The factory and city that in their very appellation were to be testaments to Soviet-Hungarian friendship turned into the opposite. Ironically,



workers finally seemed to embrace an identity linked to the showcase project when they declared that they would defend from Soviet troops what they themselves had built, a form of nationalist expression the planners of Sztálinváros had not anticipated. After 1956, an effort by the new communist leadership, installed by the Soviets, to woo worker support through improved wages and social benefits ultimately shifted opinion in what was once again called Sztálinváros, as a local socialist patriotism developed in the late 1950s and early 1960s, a sense of shared class experience and pride.<sup>47</sup>

Trouble came later in Nowa Huta, following a different course. Steelworkers helped lead a challenge to the ruling powers, at first not over work issues but in assertion of their Catholicism. Like Magnitogorsk and Sztálinváros, Nowa Huta was designed without any church, forcing residents to worship in nearby villages. Requests from the Kraków diocese to build a church in the city were repeatedly turned down until the fall of 1956, when, in response to widespread protests, the Polish Communist Party brought back as its first secretary the once-imprisoned Władysław Gomułka. Attempting to improve relations with the Church, Gomułka gave the OK. A year later a site was chosen and a cross erected there. Then authorities began stalling, and in 1960 reassigned the site to a school, ordering the cross removed. But the crew sent to take it down was blocked, first by a group of neighborhood women and then by a crowd swelled by workers finishing their shift at the mill. The defenders of the cross sang both "The Internationale" and hymns, a sign of their multiple allegiances. The day ended with a full-scale battle between four thousand residents and militia troops, who used water cannons, tear gas, and bullets, while the crowd threw stones, vandalized stores, and torched a building. Nearly five hundred people were arrested, some given substantial prison terms. The authorities, belatedly realizing the explosive symbolism, let the cross remain.

Within a few years, Catholic leaders resumed their campaign for a church, with the backing of the new archbishop, Karol Wojtyła, the future Pope John Paul II. In 1965 the government gave approval for a

church near a new housing development. It took an extended campaign to raise money for the building and erect it (with no cooperation from the government), culminating in the consecration of what was called the Lord's Ark by the then-cardinal Wojtyła in May 1977, with seventy thousand people in attendance.<sup>48</sup>

The defense of the cross and building the church helped forge a culture of resistance and networks of mobilization that soon would be used for a more profound challenge to the establishment. But the politics of Nowa Huta were by no means simple. In 1968, when student protests broke out across Poland, authorities had to move vigorously to keep secondary and technical school students in Nowa Huta from joining demonstrations in Kraków. At the same time, workers from the steel mill were bussed into the nearby city, where they beat up students from Jagiellonian University, perhaps reflecting class and cultural antagonisms as much as political differences (as in the hard-hat demonstrations in the United States two years later, when construction workers beat up student antiwar protesters). As late as 1980, about a quarter of the workers in the mill belonged to the ruling Polish United Workers' Party.

By then, intellectual and worker opponents of the Polish regime had become increasingly vocal and well organized. In Nowa Huta, in April 1979, a group drawing on Catholic social teaching, the Christian Community of Working People, formed just months before Pope John Paul II spoke at a monastery on the outskirts of the city, after being denied government permission to visit the Lord's Ark. "The cross cannot be separated from man's work," he declared. "Christ cannot be separated from man's work. This has been confirmed at Nowa Huta."<sup>49</sup>

Both national and local developments undermined steelworker support for the regime. Price hikes in 1970 and 1976 led to widespread worker protests across the country, while in Nowa Huta the construction of a large steel mill in Katowice and a growing environmental movement criticizing pollution by the Lenin Steelworks raised fears about the future.<sup>50</sup> When in July 1980 yet another price hike led to a new



wave of strikes, workers in Nowa Huta joined in, winning concessions from management. The following month, they began forming units of the independent Solidarity trade union, founded at the Lenin Shipyard in Gdańsk. The Nowa Huta steelworkers had long had a union, but it had little authority; workers wanting something often went straight to the party, the real power in the shop. When an alternative appeared, workers flocked to it.

By the fall of 1980, with 90 percent of the workforce signed up, the steel mill unit became the largest workplace Solidarity branch in the country, second in importance only to Gdańsk. In a measure of their new confidence to assert their own values, workers began bringing crosses, consecrated at the Lord's Ark church, into the mill (along with Solidarity banners), reversing the flow of culture creation from civic society to the workplace rather than the other way around as communist planners had envisioned. Nowa Huta Solidarity activists also joined in creating the "Network," linking together the largest industrial workplaces in Poland, acknowledging their vanguard role.<sup>51</sup>

The declaration of martial law on December 13, 1981, began a prolonged "state of war" in Nowa Huta (and elsewhere) between Solidarity, now driven underground, and the government. Workers occupied the Lenin Steelworks for three days before militia units with tanks regained control. By the next year, workers had begun building a clandestine Solidarity structure in the mill. The size and resources of the showcase enterprise facilitated organizing. Solidarity activists used mill supplies and printing presses to produce underground newspapers and propaganda in large quantities, for circulation both within and without the complex. Mill technicians helped set up and maintain a clandestine radio network that served the southern part of the country. Supplies lifted from the factory were distributed to Solidarity activists elsewhere. Overseas backers sent aid to the Nowa Huta unionists, who eventually obtained a computer before the mill itself had one.

With so many workers toiling and living together, norms and networks of resistance spread inside and outside the plant, as Nowa Huta

became one of the most militant centers of opposition to the government. In 1982, regular protest marches began, first led by workers but over time increasingly consisting of youths. Often the protesters assembled in churches before setting out for the center of the city, inevitably to be confronted by police and militia. In the regular running battles, at least three protesters were killed. Solidarity was less successful in its efforts to hold protest strikes in the mill itself.

In 1988, Nowa Huta helped push the country to a radical resolution of what had become a permanent economic and political crisis. Once again, price hikes led to protest. On April 26, workers at the Lenin Steelworks, still the largest industrial enterprise in the country, launched a sit-down strike demanding an increase in wages and the legalization of Solidarity. Taking control of the complex, workers' spouses and children, sympathetic priests, and outside Solidarity leaders came into the plant to support the protest. On May 4, soldiers took back control of the mill and arrested the strike leaders. But by then, the strike had sparked strikes elsewhere, most importantly at the Lenin Shipyard in Gdańsk. In an effort to end the protests, the government reached out to Lech Walesa, who had helped launch Solidarity, ultimately leading to the "Round Table" negotiations with the group, the legalization of independent unions, and, in 1989, open elections for the national senate. The massive victory by Solidarity candidates brought an end to communist rule in Poland and hastened the end of communist control in all of Eastern Europe.<sup>52</sup>

The rise and ultimate victory of Solidarity demonstrated—too late—to Polish authorities the dangers of factory gigantism and industrial urbanism. Nowa Huta, intended, among other things, to create a politicized working class largely out of children of the peasantry, succeeded, but in a way its planners had not anticipated. By the account of Solidarity unionists, Nowa Huta workers came to have a shared pride in working in the plant not because of its role in creating a socialist Poland but because of its role in fighting it.<sup>53</sup> As Goodyear, GM, Ford, GE, and other American corporations had learned decades earlier, large



assemblages of workers who work together, live together, pray together, drink together, and die together can turn the largest, most important factories from models of efficiency into weapons of labor power.

The aftermath of victory proved ironic for Polish workers. Giant fortresses of industry, built to lead the transition to socialism, stood little chance of surviving intact the transition back to capitalism. Most of the outsized Polish industrial complexes suffered from underinvestment, low productivity, and overstaffing, lacking advanced machinery found in the West. As government subsidies were lessened, captive markets lost, and privatization begun, they could not compete. What had been the Lenin Shipyard in Gdańsk underwent repeated reorganizations, layoffs, and privatization, until its workforce, 17,000 in 1980 when it gave birth to Solidarity, shrank to fewer than 2,000 in 2014.<sup>54</sup>

In Nowa Huta, one Solidarity unionist, soon after the first noncommunist government took power, estimated that a mill in the West with the same output as the Lenin Steelworks would have 7,000 workers, not 30,000, a measure of more modern equipment, more intense work, and no obligation to keep aging, ill, or alcoholic workers. With production in Nowa Huta plummeting, in 1991 the government, after negotiating with various unions (Solidarity, at that point, represented only about a third of the workforce), began a program of deintegration, spinning off various support functions, like the internal railroad network and slag recycling, and some finishing operations to twenty new enterprises, which together employed about 60 percent of the old workforce. The original company focused only on basic steel operations. To reduce pollution, large parts of the plant were simply shut down, including two blast furnaces, the open-hearth furnace, the sintering plant, and some coke ovens. The broad social mandate for the mill was reduced, too; over the years it had taken on many functions for the workforce and the city, including running a farm, canteen, medical center, vacation facilities, and a football club. These, too, were spun off or downsized.

In 2001 the Nowa Huta steelworks (by then renamed for Polish engineer Tadeusz Sendzimir) were merged with the other major steel mills

in the country. Following privatization and a later merger, it became part of the largest steel company in the world, ArcelorMittal. The new owner invested some money in modernization, with an advanced hot rolling mill opening in 2007. But in 2015 only 3,300 employees remained on the payroll, with another 12,000 workers at separate companies linked to the mill. Wages, once considerably above the norm, now were comparable to those at other area businesses. The great heroic days of socialist construction and the fight for faith and freedom were over. The mill had become ordinary, like many others across Europe and the United States, employing a modest-sized workforce, providing only a small percentage of the output of its parent company, and facing the challenge of a worldwide glut of steelmaking capacity—the result of many countries, especially China, still seeing steelmaking as a prerequisite to national greatness and modernity.<sup>55</sup>

## Global Giantism

During the era when American companies moved to smaller, dispersed factories and the Soviet Union stuck to the giant factory model, spreading it to Eastern Europe, very large factories continued to be built and acclaimed in other parts of the world, too. Some giant factories operated in Western Europe, most notably in Germany. There also were some very large factories in the developing world.

Today, the largest automobile factory in the world is in Wolfsburg, Germany, where 72,000 workers at a 1,600-acre industrial complex turn out 830,000 Volkswagens a year. With nearly 600,000 employees worldwide, including 270,000 in Germany, the Wolfsburg workforce represents only 12 percent of the company total.<sup>56</sup> Still, no other company in Europe or North America concentrates so many workers at one site.

Germany had an industrial history somewhat different than the United States or Britain. In the nineteenth century, the Krupp steel-



works in Essen was one of the largest factories in the world. But in the first half of the twentieth century, small and midsize firms dominated German industry, often working in collaboration with one another, as the country's industrial strength lay in the production of diversified, high-quality goods rather than standardized, low-cost products. There were some very large plants making producer goods—most notably steel and chemicals—but consumer-products plants remained smaller. Though Fordism attracted a great deal of attention, in practice German companies were slow to adopt its production techniques and the very large scale factories that came with them due to capital shortages, trade barriers that limited the scale of the market, and a highly skilled labor force that would be underutilized using American methods.<sup>57</sup>

German auto companies began experimenting with the assembly line in the early 1920s, but only slowly moved toward integrated, mass production. When the National Socialists took power, Adolf Hitler, a great admirer of Ford, pressed the companies to join together to mass produce a German equivalent of the Model T, a “people’s car” or Volkswagen. When they declined, the government itself took charge. In 1938, Hitler laid the cornerstone for a Volkswagen factory at what was originally called Stadt des KdF-Wagens bei Fallersleben or the City of the Strength Through Joy Car at Fallersleben (the nearest village, later to be renamed Wolfsburg). Like the Soviets, the Nazis turned to the United States for specialized, single-purpose machinery. But the war intervened before the people’s car could go into mass production; instead, the factory engaged in war production using forced labor, mostly conscripted in Eastern Europe.

German manufacturers gained experience with mass production making armaments during the war. By the early 1950s, conditions in West Germany facilitated its application to civilian production, as domestic spending power and trade increased. The Wolfsburg factory, which survived the war with little damage, converted back to its original purpose. In a throwback to the early days of Ford, for years it produced only one model, the Volkswagen Beetle, later adding a closely

related van. The company resisted building plants overseas to keep up volume and make extensive automation profitable. The German model of codetermination, which gave an extensive role to unions in corporate management, and high wages and generous social benefits (including large profit-sharing payments) helped ensure peaceful labor relations. Unlike contemporary American manufacturers, Volkswagen did not fear that workers might take advantage of concentration to disrupt production and force their will on the company.<sup>58</sup>

Though the *Mittelstand* of small and medium-sized enterprises continued to dominate the West German and later unified German economy, there were, besides Volkswagen, some manufacturers with very large plants. The chemical giant BASF, once part of IG Farben but reformed as a separate entity after World War II, concentrated production at its long-established complex along the Rhine in Ludwigshafen. In 1963, its managing board acknowledged “that a company whose production volume is concentrated in one geographical spot is especially vulnerable in many respects (e.g. to strikes, earthquakes, and other forces beyond one’s control).” Nonetheless, it decided to continue investing and expanding its historic main plant, while later adding others to increase capacity. In 2016, some 39,000 employees worked at the four-square-mile site, which had some 2,000 buildings.<sup>59</sup>

But Volkswagen remained the showcase of German industry and Wolfsburg a temple to factory giantism. Like Henry Ford, aware that a factory could be a merchandising tool, Volkswagen’s management built an automobile theme park, Autostadt, next to the main plant, which in 2014 had 2.2 million visitors. Many purchasers arranged to pick up their newly manufactured vehicles there. After German unification, the company built an extraordinary new plant in Dresden to make its highest-priced models. Glass walls make the production process completely visible, with finished cars displayed in a twelve-story glass tower, a Crystal Palace for the twenty-first century.<sup>60</sup>

If Volkswagen exemplified postwar Western European industrial giantism, dependent on stable labor relations through firm-level and



national social democratic policies, the Misr Spinning and Weaving Company in Mahalla el-Kubra, Egypt, in the heart of the Nile delta, demonstrated again the explosive potential when giant factories brought together masses of workers and treated them poorly. Year after year, regime after regime, the Mahalla workers have been at the forefront of the Egyptian labor movement, defending their immediate economic interests and increasingly intervening in national political events as well.

The Misr company was founded in 1927 by Bank Misr, an explicitly nationalist enterprise created to fund Egyptian-owned businesses during an era when Britain still occupied the country and controlled much of its economy. Despite the long history of the Egyptian cotton industry, Misr was the first modern mechanized textile plant to be owned by Muslim Egyptians. At the end of World War II, the integrated mill, which did spinning, weaving, and dyeing, employed twenty-five thousand workers, making it the largest industrial establishment in the Middle East.

Egyptian authorities and company officials projected mechanized textile mills as "citadels of modernity, national progress, and economic development." But the workforce, largely recruited from the peasantry, did not accept the elite notion of the mill as a shared nationalist project, repeatedly protesting harsh work conditions and low pay. In 1938, the first large strike at the mill demanded higher piece rates and a switch from twelve-hour to eight-hour shifts. A brief strike in 1946 was followed the next year by a massive walkout protesting layoffs and autocratic management. Tanks entered the plant to crush the strike, and three workers were killed in the confrontation. When in 1952 army officers led by Gamal Abdel Nasser seized power, overthrowing the Egyptian monarchy, workers at the mill expected improved conditions, but when they struck, the army once again smashed their walkout.

In a measure of the symbolic and practical importance of Misr, when in 1960 Nasser took a left turn to embrace "Arab Socialism," the mill was the first industrial enterprise to be nationalized. Under govern-

ment ownership, the tradition of worker militancy continued, including participation in a three-day strike in 1975 that led to substantial wage increases for industrial workers employed by the state. In 1986, workers struck again, winning a wage hike, and two years later struck yet again, this time explicitly criticizing President Hosni Mubarak. A strike at the mill in late 2006, when the government reneged on promised bonus payments, set off a wave of worker protests at other textile mills and was the prelude to an even bigger strike the following year that won a big boost in the bonuses.

An April 2008 protest by Mahalla workers, broken up by thousands of police, leaving at least three dead, helped spark open opposition to Mubarak, culminating in his tumbling in 2011 during the Arab Spring. In February 2014 workers at the mill struck, demanding the removal of Mubarak-era officials still in company management. Even after yet another quasimilitary regime took power, led by Abdel Fattah el-Sisi, the textile workers kept up their militancy, striking in another conflict over bonuses, to protest a government decision to end cotton subsidies, and to call for the ouster of corrupt company officials. As had happened elsewhere, the launching of a giant factory in the name of nationalism and modernity created a workforce with its own views of what that meant, in a strategic position to make their ideas about the past, present, and future matter.<sup>61</sup>