

## CONTENTS

Introduction: Detroit, Capital of the Twentieth Century	1
1 The Populist Roots of Mass Production	19
2 Ford's Bible of the Modern Age	51
3 The Soviet Auto Giant	90
4 Nazi <i>Fordismus</i>	131
5 War of the Factories	172
Conclusion: Refashioning Fordism under American Hegemony	207
Notes	219
Bibliography	273
Acknowledgments	305
Index	307

# Introduction

## DETROIT, CAPITAL OF THE TWENTIETH CENTURY

Nineteenth-century civilization has collapsed.

—KARL POLANYI, *THE GREAT TRANSFORMATION*, 1944

WHEN REFORMERS and radicals of the 1930s described the contours of the future, they invoked the twentieth century. In doing so, they meant to repudiate the principles of the preceding era. The nineteenth century had been the age of liberalism, but the twentieth would be a postliberal era; the nineteenth century championed individualism, but the twentieth would be the century of the collective, of the “people” and of “space”; if the nineteenth century was the era of *laissez-faire*, the twentieth century would be the era of economic dirigisme. In exemplary fashion, Mussolini performed this incantation in his 1932 treatise *The Doctrine of Fascism*, in which he attacked liberalism, individualism, and democracy as “outgrown ideologies of the nineteenth century”—ideologies rejected by the “great experiments in political and social transformation” now everywhere under way. In their place would rise the twentieth, “a century of authority, a century tending to the ‘right’, a Fascist century.”<sup>1</sup>

Not only fascists saw a new century dawning in the Thirties. John Maynard Keynes employed the notion in one of the key texts of his long intellectual transformation from classical liberal to leading theorist of state intervention. In the 1933 essay “National Self-Sufficiency,” Keynes wrote:

It is a long business to shuffle out of the mental habits of the prewar nineteenth-century world. . . . But to-day at last, one-third of the way through the twentieth century, we are most of us escaping from the

nineteenth; and by the time we reach its mid point, it may be that our habits of mind and what we care about will be as different from nineteenth-century methods and values as each other century's has been from its predecessor's.

Keynes considered in this essay the failure of the old internationalism to preserve peace and confessed his newfound willingness to honor deviations from the principles of economic liberalism and free trade. He also expressed his sympathy with the spirit, if not always with the practice, of the new "politico-economic experiments" that shaped the new international scene.<sup>2</sup>

Exiled in Paris, Walter Benjamin evoked a similar sentiment when he summoned the lost world of the nineteenth century in his "Arcades Project." To Benjamin, Paris was the capital of the nineteenth century. Its architecture reflected the rise of the bourgeoisie and the seductive triumph of the commodity form. The arcades of Paris expressed the culture of circulation, the city's world exhibitions the international sweep of the market, and its opera houses and museums the cultural sensibility of the commercial bourgeoisie. Writing in a dialectical spirit, Benjamin perceived in the bourgeois aesthetics of Paris glimpses of a future collective salvation. But in the 1930s, as Benjamin sensed only too keenly, the aesthetics of the nineteenth century—and with them the hope of salvation—crumbled around him.<sup>3</sup>

As Benjamin walked the streets of Paris, nostalgic for the promises of a bygone era, others turned away from the artifacts of commercial capitalism and trained their sights on the centers of industrial production. Port cities and commercial entrepôts may have been the metropolises of the nineteenth century, but the city most representative of the modern age was landlocked, and its iconic industry was as young as the new century itself. In the smokestacks and assembly lines of Detroit, in the din of the motor factories, where whirring conveyors laced together the bustle of thousands of workers, engineers and travelers from across the world glimpsed an image of the future. Seeking to exorcize the nineteenth century, the activists of Keynes's "politico-economic experiments" converged on the American Midwest and anointed Detroit the capital of the postliberal twentieth century.

When it came to developing fresh principles after the bankruptcy of the old economic order in the global crisis of the 1930s, it was Detroit that drew all modernizers of postliberal persuasion, left and right, Soviets and Nazis, fascists and socialists. To be sure, uncounted engineers and admirers had come to see Ford's factories since the 1910s, when the old Highland Park, forge of the Model T, was first equipped with an assembly line. Yet in the 1930s Ford's new factory—the much expanded, vertically integrated River Rouge—became the destination of engineering delegations bent on wholesale technology transfer.

Italian, German, Russian, and Japanese specialists traveled to Detroit, spent weeks, months, even years at River Rouge to learn the American secret of mass production. With the Gorky Automobile Factory (Gaz) in central Russia, the Soviet Union opened its own “River Rouge” in 1932. In 1938, Hitler laid the cornerstone of the Volkswagen works. Nor were Nazis and Soviets alone. Toyota began operating its Koromo plant in 1938, and Fiat welcomed Mussolini for the opening ceremony of the brand-new Mirafiori facility in 1939. As is easily seen, these Depression-era exchanges laid the groundwork for the infrastructure of global Fordism after World War II.

What triggered this expansion of mass production capacity in the decade marred by the Great Depression? How do we account for these rich exchanges in an age we associate with de-globalization and the breaking of the international economy into isolated blocs? What caused such momentous transfers between societies with such different visions of economics and politics? These are the questions that motivate this book. To answer them, we trace mass production to its beginnings in the United States, where it emerged from the distinctive ideology of Midwestern populism (chapter 1). We see how European postliberals on both the left and the right grasped Fordism as a compass by which to navigate the economic and ideological confusions of the 1920s (chapter 2). We then explore how the Soviet Union and Nazi Germany strove to acquire American mass production technology in order to create their own versions of Fordism in the Thirties (chapters 3 and 4). In chapter 5 we see how both regimes put Fordism to use during World War II. What spurred these transfers, this book suggests, was the political need of both Nazi Germany and the Soviet Union to rectify comparative underdevelopment vis-à-vis the United States. This shared engagement with America situates the Soviet and Nazi regimes within a larger interwar framework in which the economic ascendance of the United States conspired with the global Depression to trigger competitive industrial development across the world. The global context is crucial: by heeding it, this book delivers a new account of the rise and spread of mass production regimes in the first half of the twentieth century and suggests a novel framework to understand the interwar period at large—not as a retreat from globalization, as is commonly held, but as an era of furious and consequential attempts to transform its very structure.

## What Was Fordism?

To appreciate what is at stake, we first need to clear a path through the conceptual thicket surrounding Fordism. What was Fordism? Henry Ford in fact never used the term—his global admirers created it, and while many claimed ownership, the honor perhaps belongs to a group of early Belgian car

enthusiasts. In October 1923, they founded the “Ford Automobile Club de Belgique” and christened their newspaper, which ran articles on cars, progress, and industry, *Le Fordiste*.<sup>4</sup> After Henry Ford’s self-exegesis, *My Life and Work*, appeared abroad in 1923, the term *Fordism* quickly spread. But it came to take on quite different meanings. The doyen of the German historical school of economics, Friedrich von Gottl-Ottlilienfeld, was so impressed by Ford’s theorizing that he deemed it worthy of an “ism.” What Gottl-Ottlilienfeld saw in *Fordismus* was not just a system of production but a historical shift in the relationship between economy and society, the promise of a reconciliation between industrial efficiency and social community.<sup>5</sup> Soviet commentators eagerly received Ford’s technical recommendations but dismissed his philosophizing. In Soviet parlance, *fordizm* meant the “American organization of production” at large, replete with connotations of a cutting-edge technological modernity that Soviet engineers aspired to emulate.<sup>6</sup> In the midst of a protracted and vicious standoff with the Ford Motor Company, in turn, American unions in the 1930s used the term *Fordism* to attack what they saw as a quasi-fascist regime of shop floor oppression.<sup>7</sup>

The most influential usage of the term *Fordism* as we know it today was coined in an unlikely locale: a prison cell in southern Italy. Here the heterodox Marxist Antonio Gramsci worked out the ideas that he would eventually compile in his famous “prison notebook” number 22, titled “Americanismo e fordismo.” To Gramsci, Fordism signified a radically new phase of capitalist development emanating from the United States across the world. The assembly line, Gramsci theorized, wrought a wide-ranging transformation of the social, cultural, and psychophysical constitution of the working class. Gramsci took the paternalist intrusions of Ford’s agents into his workers’ home lives, Progressive puritanism, and even Prohibition as telltale signs that assembly work required a careful and society-wide recalibration of worker discipline. The power of the assembly line thus extended far beyond the factory, giving rise to an entire system of social and cultural imperatives that Gramsci called “hegemony.”<sup>8</sup>

Gramsci’s notions echoed a broader reception of Henry Ford’s ideas among interwar Communists. But his cherished term *Fordism* quickly fell out of fashion during World War II. It enjoyed a big comeback only decades later: in the 1970s, the European New Left rediscovered Gramsci’s writings, and the economists of the French Regulation School resurrected “Fordism.” Inspired by Gramsci’s “hegemonic” reading of the assembly line, the Regulationists now described the entire political economy of the postwar West as “Fordism,” distinguishing it from the “post-Fordism” that followed. Regulationists argued that capitalism went through distinctive “regimes of accumulation,” each of which required specific patterns of social and political “regulation” in order to function. Fordism was the archetypical example: as an accumulation strategy,

postwar mass production rested on a regulatory mode characterized by strong unions, a demand-stimulating welfare state, and a postwar cultural reformation that turned workers into consumers.<sup>9</sup>

No sooner had the Regulation School delineated its object of analysis than Fordism entered into a deep crisis. Corroded by inflation, industrial decline, and rising unemployment, the political compromise of the postwar West collapsed. Post-Fordism had begun. To some, the crisis appeared to portend a “second industrial divide”: Perhaps the future lay in discarding rigid commitments to mass production and embracing a regionally based, technologically sophisticated reinvigoration of craft based on “flexible specialization”?<sup>10</sup> Other critics began to question that mass production had ever been as dominant and pervasive as Regulationists contended. Looking for “historical alternatives to mass production,” some social scientists discovered a “world of possibilities”—firms embracing a multiplicity of organizational forms and profit strategies in response to ever-changing and unpredictable market environments.<sup>11</sup> Subtly moving the conversation from political economy to the microeconomic level of firm strategies, these scholars increasingly rejected broad concepts such as Fordism and post-Fordism in favor of a transhistorical diagnosis of “flexibility.”<sup>12</sup>

These debates subsided in the new millennium. The Western focus and sequential stage model of Fordism/post-Fordism lost its appeal as the connections between economic restructuring in the West and industrial buildup in the East became clearer. Accordingly, “globalization” is today the concept of choice for explaining industrial change. In any case, what concerns us here is that *Fordism*, in its most common usage, was a term that first originated in the 1970s and then boomed in the 1980s, when social scientists sought ways to theorize the structural crises of the industrialized West.<sup>13</sup> The debates surrounding Fordism and post-Fordism have therefore revolved around presentist concerns, and the term *Fordism* took on a meaning quite removed from the postliberal connotations it carried during the interwar period. At the same time, preoccupied with postwar Fordism’s *demise*, both the Regulationists and their critics failed to develop a compelling account of its *emergence*.

*Fordism* enjoys a second popular usage: as a shorthand for a distinctively American modernity that is said to have spread across the world in the twentieth century, in a process that historians of Europe have called “Americanization.”<sup>14</sup> Narratives of Americanization often begin with describing the rise of America’s pioneering consumer-based economy during the Roaring Twenties, which was based on high wages and mass production; this offered a seductive economic and cultural model to the world. However, despite fascination with assembly lines, European efforts to fashion their economies in the American consumerist image proved vain in the Twenties and Thirties. Awkward attempts at “command consumption”—such as the “peoples’ commodities” of

the Nazis or the Soviet invocations of a “socialist culture of consumption”—did not help.<sup>15</sup> Only after World War II did Fordism become part of the spread of American-led capitalism across the globe, a core element of the *Pax Americana* based on embedded liberalism and Cold War internationalism. When it came to Fordism and Americanization, we are told, “the postwar decades continued where the 1920s left off.”<sup>16</sup> Or, as a Regulationist-inspired piece put it, “Fordist development was interrupted by depression and war.”<sup>17</sup> Regulationist and Americanization narratives of Fordism, then, bracketed the 1930s and 1940s, relegated the 1920s to a period of embryonic anticipation, and thus instilled the lasting sense that postwar Fordism was not born of historical contingency, but was somehow preordained.

Finally, *Fordism* is used in a third way that focuses more narrowly on what goes on inside firms and on shop floors. Business historians have reconstructed the Ford Motor Company’s early expansion to all regions across the globe, where it served as a disseminator of various signature practices—assembly lines, the one-product policy, the characteristic mix of high wages and open shop, and so on.<sup>18</sup> Ford shop floor arrangements also exerted enormous attraction on other European carmakers in the interwar period. However, as business historians have amply documented, firms abroad adopted American-style Fordism only in selective and hybrid ways—and that assessment included Ford’s own subsidiaries. In particular, Ford’s rigid ideas on model policy and labor relations proved impossible to transfer one-to-one into different national contexts.<sup>19</sup> To labor historians, meanwhile, Fordism means the shop regime associated with mass production: a focus on unskilled laborers working monotonous tasks on assembly lines. In this vein, Fordism is often mentioned in the same breath as Taylorism—it is seen as a managerial strategy to subdue unruly shop floors.<sup>20</sup> In this view, managers approved of the assembly line because it was a sublime “exploitation innovation,” as one German historian memorably put it.<sup>21</sup>

These uses of the term *Fordism* remain valuable, and in this book we build on all three of them. In particular, Regulation Theory asks us to consider the political economy that surrounds mass production, especially the thorny question of demand management. The “Americanization” vein illustrates the deep entanglement of mass production with the politics of postwar American soft power, consumer capitalism, and embedded liberalism.<sup>22</sup> Viewing Fordism as a firm strategy and shop floor setup, finally, reminds us that assembly lines constitute a very specific way of organizing industrial work—one that requires dedicated efforts to mobilize unskilled laborers into the factories and, once there, to keep them working.

At the same time, however, the existing approaches leave some fundamental questions open. First, how did America arrive at mass production and

consumer capitalism in the first place? Our narratives surrounding Fordism seem to take two things for granted: that the Second Industrial Revolution would somehow culminate in automotive mass production and the consumer economy, and that it was naturally the United States that would pioneer this breakthrough. It seems to surprise no one that an emblematic *American* company—Ford—first introduced the mass production of cars. These assumptions unwittingly perpetuate a modernization paradigm long thought discarded, namely, the idea that national economies move in stages set out by the advanced West. That successful modernization would converge toward the American model of “high mass-consumption” was, after all, a proposition first put forth by Walt Rostow.<sup>23</sup> As we discuss, however, the rise of automotive mass production in America was hardly a seamless departure. In many ways, in fact, mass production cut hard *against* the mainstream of American nineteenth-century economic development. Emerging from the middling metal-working shops of the American Midwest, mass production had a social, economic, and political context that put it at odds with the emphasis on extraction and producer goods that characterized America’s Second Industrial Revolution; it was subversive of the economic hierarchies that found their expression in the grand alliance of finance and industrial capital signaled by the Great Merger Movement at the turn of the twentieth century. In particular, Henry Ford’s own ideas on Fordism projected a political (and moral) economy that hardly anticipated the American consumer modernity that emerged after 1945; it is more accurate to say that the postwar world marked the final defeat of Henry Ford’s populist vision of mass production. From the outset, then, Fordism was charged with a contrarian politics, and this fact—entirely overlooked by historians—explains much of Fordism’s attraction on the global right of the interwar period. This is the first main argument of this book. We explore it in chapters 1 and 2.

Second, what happened to the global diffusion—intellectual, technological, economic—of Fordism in the years assumed to mark a hiatus: the Thirties and Forties? Did assembly lines no longer seem attractive? Did attempts to build mass production industries simply cease? In fact, quite the contrary. True, “command consumption” was a failure—and it could not have been otherwise in regimes that built up industry by curbing consumption. Mass demand, however, is not the exclusive characteristic of consumer economies. Preparing, and waging, a world war also increases demand, especially for vehicles and weaponry that lend themselves superbly to the production arrangements of Fordism. Fordism was amenable not only to a Keynesian regime of demand management: outside of the United States, it in fact flourished first under state-sponsored regimes of rearmament and war. This history—the military history of Fordism—reveals mass production as an intrinsic “dual



use” technology: one that could serve civilian needs just as well as military ones, and one that was attractive precisely because of this property. Nor can the military history of Fordism be safely bracketed from its civilian one, as so many histories seem to assume.<sup>24</sup> How Fordism came to serve the purposes of rearmament and war is an intrinsic chapter of its global history, not least because the very same engineers who adopted Fordism in the Thirties ran arms production during the Forties and transitioned back to civilian industries after the war was over. Rather than interrupt, depression and war actually accelerated and intensified the global spread of Fordism. This is the second main argument of this book. We explore it in chapters 4 and 5.

Third and finally, how do we accommodate Nazi Germany and the Soviet Union into a global history of Fordism? Clearly, this question strains the limits of frameworks that associate Fordism with peacetime liberal capitalism. It sharply highlights a central lacuna in our histories of Fordism: the role that activist states played in orchestrating industrial development and in transferring production technology across borders. Here we need to take a step back and apply a fresh dose of empiricism. As industrializing states turned to mass production in the 1930s, what were their motives? How did they do it? And what were the consequences?

### Revolt against America

The answers begin with the two most momentous irruptions of the interwar years: the ascendancy of the United States to global hegemony and the cataclysm of the Great Depression.<sup>25</sup> America’s rise was not sudden: by the late nineteenth century, European voices began warning of the “American danger” brewing across the Atlantic.<sup>26</sup> After helping the Allies win World War I, the United States appeared unassailable, both as an industrial powerhouse and in its newfound role as the world’s banker. Germany’s revival after the inflation of 1923 was fueled by American loans. Italy strained to export lemons, crude textiles, and wine to pay for the (American) grain consumed by its workers; but, chronically in deficit, the country still borrowed on Wall Street to balance its payments.<sup>27</sup> Cut off from access to global capital markets after repudiating the Tsar’s debt in 1918, even the Soviet Union engineered a stabilization of the ruble in 1924 in an effort to gain renewed access to American commercial credits.<sup>28</sup> At the same time, American export dominance, especially in the signature industry of the era—automobiles—diminished other nations’ chances to secure the foreign exchange to repay those loans. Singularly, the United States seemed able to engage the world on its own terms—restricting immigration while exporting capital, raising tariffs at home while pushing the door open for trade abroad, looming over world politics while keeping its

distance from the League of Nations. So the world was torn: Was it worth courting the United States in an effort to patch together a new international order, as British and French liberals thought? Or was American power to be seen with trepidation, even fear?

By the early Thirties, the doubters won the day. During the Great Depression, confidence evaporated that world markets would deliver recovery. The problem was not only slump and unemployment—what lastingly undermined liberal internationalism was the disintegration of global credit relations signaled by the gold standard's fall. The Great Depression arrived in all but the most privileged nations as a Great Balance-of-Payments Crisis. Germany, Eastern Europe, and the raw-material export economies of the Global South shared a characteristic predicament: they were deeply indebted, had dim prospects for exports, and could hope to remain creditworthy only by staying a brutal course of domestic austerity. In this environment, the proposition of maintaining traditional trade and investment relations seemed increasingly dubious.

Across the world, the Depression brought to the fore domestic coalitions bent on reorienting national economies away from Britain and the United States. In particular, the Depression handed radical forces within Germany and Japan strong economic reasons and rich political justification to militate against the international status quo. In doing so, these interwar “insurgents” challenged both the global division of labor of the 1920s and the newly risen hegemon in the Western Hemisphere—the USA.<sup>29</sup> The United States' astonishing growth, they surmised, was the result of a successful westward expansion into a fully valorized hinterland and of the creation of a powerful internal market. America's enviable ability to confront world markets on its own terms appeared to reinforce the lesson that the way forward lay in the creation of similar, externally independent and internally refashioned, economic “spaces.”

For the insurgents, the solution was “autarky”—a mixture of economic dirigisme and industrial-military buildup based on a reorientation of trade and investment relations away from the West and toward neoimperial “backyards.” Japan struck first, reaching into Manchuria at the very depth of the global collapse in the late summer of 1931. Italy's decisive turn to autarky coincided with the invasion of Ethiopia in 1935. Germany began harnessing South-Eastern Europe into trade dependency even before embarking on an expansionist spree that began with the Austrian *Anschluss* and culminated in the invasion of the Soviet Union.

As proponents insisted, autarky was as much a response to a capsizing international economy as it was an artifact of political nationalism.<sup>30</sup> Why comply with the rules of liberal internationalism when even Britain, erstwhile stalwart of free trade, retreated behind imperial tariffs? Why honor crippling

debts when the Bank of England itself jettisoned the gold standard? What good was the sophistry of “comparative costs” when depleted foreign exchange reserves made imports an extravagance?<sup>31</sup> Autarky indulged nationalist rhetoric, but it was also a plausible response to economic emergency and the tightening straitjacket of the balance of payments.

At the same time, autarky decisively served nationalist goals. Severing commercial and financial ties with the West strengthened the state’s grip on the structure of the economy. In Germany under Hjalmar Schacht and in Italy under Felice Guarneri, foreign exchange management became a primary means to shift resources from agriculture and light industry to capital investment and rearmament.<sup>32</sup> The results seemed to speak for themselves: countries that turned to autarky registered vigorous industrial growth during the 1930s.<sup>33</sup>

If we step beyond the smoke screen of ideology and Cold War assumptions, it is easy to see that the Soviet Union’s path was not categorically different. To be sure, that Russia needed to industrialize had been a core Bolshevik demand since the Revolution—but by the onset of the global Depression the Soviet Union had not made much headway, and now time was running out. Like all grain exporters, the Soviet Union by the late 1920s faced declining export proceeds and dangerously low foreign exchange reserves. In response, the gradualist approach to economic development—a continuation of the Tsarist-era accumulation strategy that built on Russia’s comparative advantage as a grain exporter—came into serious question. Moderate, world-market-oriented growth based on grain exports would no longer do. Against the background of world commodity markets mired in protracted deflation, Stalin and the radical industrializers in the politburo won their case: if the Soviet Union was to gain economic independence, it had to *accelerate* industrialization, or be condemned to the status of a peripheral grain exporter at the mercy of prissy creditors and punishing terms of trade.<sup>34</sup>

As a response to the global Depression, then, the “insurgents”—whether fascist or communist—radically shifted resources into industry, built up military capacity, and strove to break the stranglehold of the balance of payments and to gain independence from foreign capital. Those blood-and-soil fascists who dreamed of neagrarian self-sufficiency remained marginal: in fact, twentieth-century autarkists sought to build industrialized, militarily capable, and technologically sophisticated imperial economies—whether called *Lebensraum*, *Impero italiano*, Greater East Asia Co-Prosperty Sphere, or Soviet Union. These modernist projects, then, depended on one sensitive element impossible to source at home: cutting-edge foreign technology. To gain the forefront of industrial modernity, all insurgents first had to turn for guidance to the most advanced nation of the era. Interim technological dependency on the United States—such was the wager of autarky—would be the price of

long-term economic independence. In particular, the sector seen as the strategic key to American preponderance—the automobile industry and its mass production mechanisms—demanded emulation. How to build an American-style economic juggernaut could be learned, it stood to reason, in Detroit. This explains why after trade and foreign investment collapsed in the Depression, by the mid-1930s technology transfers intensified. The spread of Fordism during the interwar years, then, arose from an antagonistic development competition that was initially triggered by the rise of the United States and then accelerated by the Great Depression. This is the third main argument of this book.

### Antagonistic Development, Technology Transfers, and the Search for “Economic Independence”

With the technology transfers of the Thirties, the “insurgents” sought to close the development gap that separated them from the United States. In the Soviet case, that gap was vast. In the 1920s, Russia was an agrarian country with a smidgen of industry, which—as the Bolsheviks knew only too well—had failed the test of World War I. The bleak fact of Russia’s comparative weakness—the Bolsheviks’ favored term was “backwardness” (*otstalost’*)—spurred the political debates of the Twenties and the economic policies of the Thirties. Overcoming the Soviet Union’s backwardness remained an overarching political goal.

Accordingly, in moments of frankness, Marxist vocabulary took a backseat to a conspicuous rhetoric of catch-up development. As an agrarian country, Stalin pointed out in 1925, the Soviet Union was forced to export agricultural goods in order to obtain machinery from abroad. “To remain on this level of development,” Stalin warned, would risk turning the Soviet Union “into an appendage of the capitalist [world] system.” In 1933, when Stalin summarized the “fundamental tasks” of the First Five-Year Plan, he began with these items: First, to “direct our country from its backward, sometimes medieval technology onto the rails of new and modern technology,” and second, “to transform the USSR from an agrarian and weak country dependent on the whims of the capitalist countries into an industrialized and powerful country completely self-supporting and independent of the whims of world capitalism.” In 1941, Stalin instructed a gathering of economists to stop “string[ing] together quotations” from Marx and Engels and grasp that “the main task of planning” lay in using the power of the state to push the economy toward industrial buildup, in order “to reach the point where metal and machines are in our hands and we are not dependent on the capitalist economy.” After World War II, Nikolai Voznesenskii, Stalin’s generalissimo on the war production front, credited

victory over Germany to the “development of socialist industry” that had taken place since Lenin, which—in stark contrast to World War I—had now assured “the independence and military-economic might” of the Soviet Union.<sup>35</sup> Industrialization, then, was not purely a matter of ideological predilections: its significance was at once economic, militarist, and political. These considerations were glued together by a strong sense of national mission (“our country”) and an expansive notion of “economic independence” that had strong civilizational connotations.<sup>36</sup>

The grand military-economic strategy of Hitler and his National Socialists, as scholars have recently reminded us, was also a reaction to a self-assessment of comparative weakness in the world economy.<sup>37</sup> Hitler saw the United States as a formidable economic force that at once posed an existential threat and offered a highly instructive model of development. The instructive part lay in America’s unique combination of continental territory and mass production capacity, a mix that furnished Americans with a fabulously high “standard of living”—a concept dear to Hitler. “Europeans use, albeit not always consciously, the conditions of American life as a benchmark,” Hitler wrote in 1928.<sup>38</sup> In modern world affairs, this was the benchmark to which any nation worth its salt would aspire. However—and this was the existential threat—America’s immense economic power was increasingly squeezing other nations from world markets, making it impossible for them to catch up. Especially in the sector most telling of future potential, the automobile industry, Germany’s feeble producers were destined to extinction. By the depth of the Depression, Hitler’s stump speeches drew the apocalyptic tone of an impending “world catastrophe” in large measure from the overwhelming economic threat of the United States. How could German industry hope to compete against America, that “gigantic state with infinite production capacities”? Had not the Depression fully revealed the folly of relying on world markets? Instead, it was now necessary for Germans to turn their backs on the “phantom of the world economy” and build a state endowed with both economic and military independence, one that was able to “secure through its own strength what it needs from the world.”<sup>39</sup>

Evidently, both the Nazi and the Soviet self-diagnosis of underdevelopment vis-à-vis the United States was soaked in existential ideological sweat. This diagnosis, however, prescribed a simple and precise course of action: beat America with American methods. Lest Germany become “America’s prey,” it was necessary “to study the means and mechanisms of the Americans,” said Theodor Lüddecke, one of Fordism’s most vocal advocates on the Weimar right.<sup>40</sup> Similarly, Arsenii Mikhailov, one of Fordism’s ardent Soviet champions, argued that the goals of the Five-Year Plan required “a swift and complete switch to the most advanced American technology.”<sup>41</sup>

The making of Gaz, the Gorky “Auto Giant,” resulted from this course of action. Gaz marked an extraordinary attempt to transfer American technology wholesale and to indigenize it in a social and economic environment that seemed hardly ready for it. Soviet workers and engineers indeed struggled mightily to adopt what they took from Detroit. But despite enormous sacrifices and waste, somehow, by decade’s end, a capable motor mass production industry had materialized in central Russia. We follow the story in chapter 3. Germany could dip into deep homegrown technological capabilities that the Soviet Union lacked and therefore struggled somewhat less to assimilate Fordism. The result was a double reception. The Volkswagen plant echoed the Soviet strategy of comprehensive copying. But the Nazi regime also tried (and largely succeeded) to harness the industrial acumen of Ford and General Motors, both of which had branches in Germany, to its own ends. Ensnaring the Americans in a web of threats and incentives, the regime achieved pervasive, dollar-subsidized transfers of mass production technology into Germany. The story is laid out in chapter 4. In chapter 5, we see how both the Nazi and Soviet efforts to adopt automotive mass production paid off as the two regimes rained military matériel on each other in World War II.

### Contexts: Strategic Industrial Policy and Developmental Regimes

Viewing technology transfer as a strategy of development competition sets the Soviet and Nazi efforts against the backdrop of industrial rivalries across the world, in which nations jockeyed to get their hands on the automobile industry and its mass production techniques. In a characteristic double gesture, statesmen and industrialists sought at once to acquire the American carmakers’ technology while curtailing their hold on domestic markets. In Japan, no automobile industry existed after World War I, and during the Twenties both Ford and General Motors built assembly plants that fully covered the needs of the domestic market. By the mid-Thirties, however, the militarist government began to support fledgling attempts by Japanese industrialists to nurture a homegrown auto production. In 1936, the government passed the notorious Automobile Manufacturing Enterprise Law, a measure that discriminated against the American firms, penalized imports of vehicles, and encouraged Nissan and Toyota—weak and inexpert producers compared to the Americans—to expand investments and update their technologies. These measures eventually forced GM and Ford to exit the Japanese market and allowed Nissan and Toyota to acquire the Americans’ factory machinery and hire their workers and engineers.<sup>42</sup>

In Italy, too, the regime tolerated the presence of American carmakers only for a brief period after World War I. In 1929, Mussolini personally thwarted an attempt by Ford to expand its presence in Italy, declaring that American competition would devastate the domestic automobile industry. Instead, Mussolini decisively backed the Turin-based carmaker Fiat, which benefited not only from the regime's stifling labor policies but also from its military orders, export promotion schemes, and generous foreign exchange allocations for technology from the United States. Ford and GM eventually left the Italian market, while Fiat built its own brand-new, Rouge-style megaplant.<sup>43</sup> Opened in 1939, Mirafiori was very similar to the Nazi Volkswagen project: a Fascist white elephant, valuable for propaganda purposes but also a monument to how assiduously the regime sought to alter its place in the global industrial pecking order. During the war, Mussolini still prided himself for pushing Ford out of Italy and warned that military defeat would bring "the end of our automobile industry." Italy would be forced to again submit to the nineteenth-century logic of comparative advantage and return "to where its eternal enemies always wanted it: a pure expression of its geography."<sup>44</sup>

A strategic policy vis-à-vis the overbearing American automobile industry, however, was hardly the preserve of dictatorships alone. All capable states strove to strengthen domestic producers while encouraging technology transfers from Detroit, in effect curbing imports of cars while supporting imports of know-how.<sup>45</sup> The arsenal of measures included ever-present tariffs, attempts to organize domestic cartels, and pleas for strategic joint ventures with the Americans. Confronted with tariffs, Ford and GM established full manufacturing plants in Britain, Weimar Germany, France, and Scandinavia, and across Western Europe. In all these contexts, the Americans faced stiff headwinds from an alliance of domestic firms and governments, who compelled them to qualify as "national" producers by increasing national ownership and sourcing a high share of locally produced supplies.<sup>46</sup> Governments in Weimar Germany, Britain, and France repeatedly encouraged domestic firms to merge in a bid to confront the Americans (though most of these initiatives came to naught since rivaling firms found it hard to agree on terms). France, which retained the strongest automobile sector outside of the United States, nevertheless was extremely wary of American competition. Returning in 1931 from a visit to the Rouge, industrialist-nationalist Louis Renault declared that the French auto industry was "gravely menaced" and demanded that "everything must change."<sup>47</sup> Renault lobbied successive governments for protection and promotion of the home industry, all the while sending a succession of engineering delegations to Detroit.<sup>48</sup>

These frantic industrial politics, finally, point to the broadest context within which to locate the Soviet and Nazi bids for a homegrown Fordism. That

context is the larger restructuring of the global economy during the 1930s—the ubiquitous efforts of regions, nations, and elites to upend the global division of labor inherited from the nineteenth century. Across the world, the Depression triggered revolts against the “great specialization” that divided the world into raw material exporters in Central Europe, Asia, Latin America, and Africa on the one hand, and the industrial core in northwestern Europe and the North American manufacturing belt on the other.<sup>49</sup> The balance-of-payments squeeze that the Depression imposed on Italy, Japan, Germany, and the Soviet Union was felt with equal agony in the peripheral export economies of the world. Unable to pay for manufactured goods with crops that no longer found markets, nations of the global periphery ditched the gold standard, slashed imports, and began to industrialize.<sup>50</sup> While modern automobile sectors were yet beyond the reach of countries in Latin America, the Middle East, and Asia, they nevertheless worked to build up and bolster domestic industries—usually first textiles, then often steel. When it came to the world at large, the consequence was, as a contemporary economist from New Zealand observed, that “the Depression did not halt the industrial revolution, but actually . . . accelerated it.”<sup>51</sup>

## Twentieth-Century History beyond Modernization

This context of worldwide development competition allows us to think afresh about the places that the Soviet Union and Nazi Germany inhabited in the global Thirties. Since the demise of Cold War frameworks—of Sovietology, of modernization theory, of “totalitarianism”—two prevailing analytical modes have emerged in dealing with the two regimes. The first mode has posited a “dark” or “illiberal” modernity at the height of the twentieth century. By interpreting Nazism and Stalinism as revealing deep contradictions within the Enlightenment project itself, scholars working in this mode ostentatiously turned sanguine modernization conceits on their ear. They pointed out that both liberal and antiliberal regimes embraced characteristic markers of modernity, such as social engineering, top-down homogenization, biopolitics, and scientism, as well as modernist cultural and intellectual sensibilities.<sup>52</sup> To this critique, other scholars responded vehemently: they emphatically reaffirmed liberal-normative commitments and insisted that Fascists or Communists only ever succeeded in creating mimicry versions of modernity—hollow “dissimulations,” as it were, that were bound to fail without the trappings of democracy and liberalism to sustain them.<sup>53</sup>

More recently, scholarship has sought to transcend these debates by expanding the lens to a more global purview. The signature move has been to combine fresh comparative inquiries with close attention to borrowings and



interactions that cut across the ideological rivalries of the interwar period. This literature's most compelling locus of comparison has been emboldened states, which everywhere responded to the Depression by abandoning markets for planning, engaging in unprecedented economic management, building labor services, expanding welfare systems, and sponsoring public works. While the violence perpetrated by the Nazi and Soviet states still stands out, the overall effect of this literature has been to muddle the stark dichotomies inherited from modernization theory: we now witness "modernities," sometimes described as "multiple" or "entangled." The Thirties emerge as a laboratory of experimentation in a shared transnational crisis; a kind of global antiglobality, in which states eagerly pursued domestic projects while jealously eyeing across borders. If modernization theory deduced the political choices of the interwar period from national historical trajectories, the new literature sees these choices as constituting competing responses, each inflected with a particular ideology, to the shared challenge of post-World War I dislocations and economic depression.<sup>54</sup>

This book too sees the global Thirties as characterized by vigorous transnational exchanges. It aims, however, to do more than simply add a new layer to now familiar narratives of entanglement. Instead, this book suggests that the interactions it documents should be theorized in a novel way: as occasioned by a precise political-economic logic, that of an antagonistic development competition whose reference point was the United States. Technology transfers were more than cross-ideological flirtations: the very logic of development competition *required* transnational engagements that were at once conflictual and intense. It is a truism of catch-up development that those who pursue it must turn, for capital and technology, to those they seek to emulate and challenge. This truism counsels skepticism toward the impression evoked by the "multiple modernities" literature, namely, that the "interwar conjuncture" can be understood as a generic crisis to which all responses were simply variations on a common theme.

When it came to development competition, the challenges that confronted the United States, the Soviet Union, and Nazi Germany were decidedly *not* the same. Because backwardness was measured by reference to the economic and technological level of the United States, Americans were by definition spared its sting; however, backwardness appeared to pose an existential threat to an ideologically embattled late developer such as the Soviet Union. As an expansionist military-industrial state, Nazi Germany found comparative underdevelopment equally intolerable. Similarly, as a net creditor nation and technological leader, the United States enjoyed freedom from the constraints that a chronic shortage of foreign exchange (most importantly, reserves held in gold, dollars, or pounds sterling) imposed on both Nazi and Soviet industrial projects. As we will see, the foreign exchange squeeze, which haunted all global debtors in the

context of deflationary world markets, was one of the most vexing problems confronting both Soviet and Nazi economic policymakers.

By the same token, a wide gulf separated the Soviet development challenge from that faced by Nazi Germany—the gulf measuring the distance between an agrarian exporter and an industrial nation traditionally dependent on foreign trade. Each regime’s strategy for appropriating American technology has to be understood in light of these differences.

These reflections evoke an image of the Thirties as an arena of sharp and increasingly violent contests over the question, Global economic relations on whose terms? Who would dictate the shape of industrial and technological development and the distribution of power in the global division of labor? This perspective sees the Thirties as a period of struggle over the making and unmaking of different architectures of globalization, a struggle in which claims on capital, goods, and technology clashed in the arena of worldwide development competition.

Rereading the interwar period in this way, finally, invites us to reconsider some fundamental questions about the twentieth century at large. First, the twentieth century has recently been called a “development century”—an era marked by Western efforts, whether framed as civilizing mission or benevolent bestowal of expertise, to export development to the world.<sup>55</sup> These efforts are easily situated within longer histories of Western imperial designs, and Fordism’s spread abroad has sometimes been narrated in this vein.<sup>56</sup> The history of state-sponsored Fordism within interwar development competition, in contrast, allows us to foreground a very different development century: one in which self-initiated industrial upgrading resulted not from the dictates of American empire but from revolts against them; in which development aspirations did not emanate from the core but emerged from the semiperiphery; and whose projects were not a response to the paternalism of imposed modernization, but arose from the policies of states vying over the terms of the global economic order. This perspective allows us to discern a genealogy of industrial politics that connects the activist states of the Thirties backward to the mercantilism of Hamilton, List, and the Meiji Restoration, as well as forward to the “developmental states” of postwar Japan, South Korea, and present-day China. It is a story that yet awaits mapping by historians.<sup>57</sup>

Second, the literature on “multiple modernities” has been unable to dislodge, and perhaps has actually reinforced, what historian Charles Maier in a classic statement identified as “moral” narratives of the twentieth century.<sup>58</sup> In such narratives, the catastrophes of Depression and war feature as a swerve away from, and then back to, the normal course of history. In light of the postwar reconstruction of a liberal international order under American auspices, it remains tempting to narrate the interwar period as a kind of

nightmarish detour.<sup>59</sup> Post-1945 Soviet Communism, then, appears as a zombie holdover from the interwar period on which the historical clock was always implacably ticking—an impression seemingly vindicated by the collapse of “actually existing socialism” in the 1990s.<sup>60</sup> The close familial relationship that connects these enduring conceptions of the twentieth century to the metanarratives of modernization theory is obvious.<sup>61</sup>

Maier juxtaposed these narratives, in which history revolves around grand notions of moral progress and regression, to hypothetical “structural” narratives that might focus on “economic development or large-scale institutional change.”<sup>62</sup> It is striking in this regard that contemporaries of the 1930s invoked the twentieth century precisely as a marker of profound *structural* reversal. “Nineteenth-century civilization has collapsed”—this was the opening sentence of Karl Polanyi’s wartime reckoning with the changes wrought by his era.<sup>63</sup> Polanyi shared with the postliberals of the 1930s the sense that a profound reorientation was under way, a change he considered an “institutional transformation” of historical significance—a *Great Transformation*.<sup>64</sup> Polanyi points toward a different periodization of the twentieth century, in which the interwar years emerge not as an aberration but as the century’s very fulcrum: a momentous reversal that reconfigured the architecture of the global economic order, as the vision of an integrated world based on liberal-imperial principles imploded and made way for an era of strategic, competitive industrial upgrading orchestrated by activist states. Seen from our own contemporary perspective, it is possible that the American-sponsored reconstitution of a liberal world order after 1945 only veiled this deeper shift. The mass production plants of postwar Fordism were after all a legacy of the global Thirties. Like a palace built of the rocks and sediments of an earlier age, the postwar order rose on the foundations of the antiliberal era that preceded it.<sup>65</sup> The story told in this book, then, aims to situate the global Thirties in a “structural” narrative of the twentieth century: the type of state-led, competitive economic politics, whose full consequences we are beginning to grasp only today, has its roots in the “great transformation” of the Thirties. Tracing these roots is the concern of this book.

Our story begins at the shrine of modern industrialization, in the capital of the twentieth century: Detroit.

## INDEX

- Agnelli, Giovanni, 130
- agriculture, 10, 64; in Midwest, 24, 27; in Soviet Union, 94–95, 99, 203, 213
- aircraft industry: BMW, 181–82, 184; and Fordism, 180–81; Junkers, 180, 181; in Nazi Germany, 86–88, 134, 135, 167, 183, 192–95, 216, 265n58; in Soviet Union, 116, 196–97, 204
- Albert, Heinrich (Ford AG), 146, 149–50, 152, 153, 155–57, 161, 256n49
- Allach (BMW plant), 190–92, 193, 204
- Ambi-Budd, 158
- Americanism: “Americanism and Fordism” (see Gramsci, Antonio); in Soviet Union, 75–77, 81, 87–88
- Americanization, 5–6
- AMO. *See* Moscow Automobile Society
- Amsden, Alice, 90
- anti-Semitism, 62, 63, 64, 69, 238n37; Henry Ford and, 52, 64
- assembly lines, 2–3, 5, 7, 30, 53, 61, 110, 168, 172, 173; at Fiat Mirafiori, 130; at Ford Highland Park, 30–31, 34, 80; Fordism and, 6; at Ford River Rouge, 22; at Gaz (Gorky Automobile Factory), 115, 119, 120, 123–26, 128, 129–30, 203; at GM Pontiac plant, 20; Gramsci on, 4; postliberals on, 61, 69; at Opel Brandenburg plant, 159; Regulation School on, 4; speedup of, 49; at Volkswagen, 167; in war production in Germany, 189, 190, 192, 194; in Weimar automobile industry, 141. *See also* conveyors; flow production; Fordism; mass production
- Austin (construction firm), 106–7
- autarky, 9–11, 25, 71–72
- Auto Giant. *See* Gaz (Gorky Automobile Factory)
- automation, of manufacturing, 160, 212–13
- automobile industry, 13, 224n45; and aircraft industry, 181; development and, 15, 98–100, 133, 170–71; elites and, 29, 36; in France, 14, 137–38; in Germany (–1933), 12, 139–40; in Germany (1933–45), 133, 148, 152–53, 170, 181; in Germany (1945–), 163, 195, 210, 216; Hitler on, 70; in Italy, 14, 137; in Japan, 13, 138; mergers in, 138, 140–41, 164; in Midwest, 24–25, 27, 32, 35–37, 229n17; Midwest mechanics and, 35, 36; and “people’s car,” 139, 141–42; in Soviet Union, 98, 100, 104, 118, 122; in United States, 14, 25, 43, 109, 181; *See also* Fiat; Ford AG (Cologne); Ford Motor Company; Gaz (Gorky Automobile Factory); General Motors (GM); Opel AG; Volkswagen
- Automobile Manufacturing Enterprise Law (Japan, 1936), 13
- Automotive Association. *See* Reich Association of the German Automobile Industry (RDA)
- Autostroy, 106, 107, 110–15, 116–17
- Auto-Union, 20, 50, 131, 140, 143, 145, 174, 177–78, 182, 187, 195
- Aviation Ministry (Nazi Germany), 154, 172–74, 180–89, 191–94, 204, 258n80. *See also* Göring, Hermann
- Avtostroï*, 91, 104, 106–7, 109–11, 116

- balance of payments, 215; autarky and, 10;  
Germany and, 134, 137, 210–11; Great  
Depression and, 9, 15; Italy and, 8; Soviet  
Union and, 95, 115. *See also* exports; foreign  
exchange; imports
- Beliaev, N., 51
- Benjamin, Walter, 2
- Bennett, Frank, 110, 112
- BMW AG, 50, 133, 140, 145, 163, 181–82, 183,  
184, 186, 187, 190–94, 204
- Bottino, Bonadè, 20
- Brandenburg (Germany), 138, 152; Opel  
plant in, 152, 153, 154, 158, 159, 160–63, 170,  
182, 184, 211, 257n73
- Britain, 9, 14, 50, 54, 64, 69, 139, 170, 176, 180,  
181, 183
- Bron, Saul, 101
- Bruschi, Rambaldo, 20, 91
- Bukharin, Nikolai, 76, 77, 94, 95
- Busygin, Aleksandr, 121
- Cadillac, 29
- Camerana, Giancarlo, 90–91
- capitalism, 2, 4, 6–8, 11, 26, 40, 48, 51, 53,  
66, 78, 84, 87; investors and, 44, 48, 68;  
Henry Ford and, 65, 82, 84; view of in  
Soviet Union, 82, 84, 85, 87, 94, 213–14; in  
United States, 65, 82, 84
- capitalization, 29, 49, 235n101
- Carl Schurz Society, 51
- Central Institute of Labor (Soviet Union),  
81–82, 86
- Chevrolet, 21, 37, 43, 38, 43–44, 106, 160, 179
- Chrysler, 100, 177
- Cold War, 6, 10, 15, 92, 212–16
- collectivization, in Soviet Union, 93–94,  
95–96, 121, 245n17
- Cologne (Germany), 146. *See also* Ford AG  
(Cologne)
- Communism: Hitler on, 205; in Soviet  
Union, 18, 76, 79, 92, 126, 225n53, 244n10
- Communists, 4, 10, 15, 88; and Fordism, 75;  
in Italy, 72–73, 75, 214, 240n63; in Soviet  
Union, 79, 80, 82, 85, 88, 92, 111–12
- concessions (NEP), 101–2, 248n44
- consumerism, 40, 207, 212
- consumption, 25, 37, 43, 44, 47, 49, 53, 61,  
207; “command consumption,” 5, 7, 144,  
220n15; “high mass-consumption,” 7, 48,  
215, 221n23; in Nazi Germany, 5, 134, 144;  
in Soviet Union, 6, 7, 93, 213, 215, 271n29;  
and World War II, 176, 195, 207
- conveyors, 2; at Ford River Rouge,  
22, 90; at Gaz (Gorky Automobile  
Factory), 124–25, 129–30, 200; in Nazi war  
production, 181, 189, 190, 191, 194; at Opel  
Brandenburg plant, 160; perception of  
in Soviet Union, 84–85, 87; at Volks-  
wagen, 165. *See also* assembly lines; flow  
production; Fordism; mass production
- Coudenhove-Kalergi, Richard Nicolaus  
Graf von, 55
- Crowther, Samuel, 55–57, 62, 82, 150.  
*See also* *My Life and Work* (Ford)
- Dahlinger, Ray, 46
- deflation, 10, 16, 49, 64, 98
- Detroit, Michigan, 2–3, 11, 13, 18, 19–24, 26,  
33–34, 43, 55, 57, 80, 90–91, 100, 131–32,  
140, 155–56; demographics of, 24, 27;  
Dybets Commission in, 105–10, 126, 133;  
economy of, 24–25; migration to, 32–33,  
132; migration of engineers from, 132–33,  
146, 166–67; origins of automobile  
industry in, 27–29, 33, 38, 39, 42, 228n17;  
urban politics in, 28; technology transfers  
from, 14, 128, 130, 162, 179; travels of  
engineers to, 19–24, 90–91, 97, 100, 110,  
114–15, 117, 139, 162, 164, 174. *See also* Ford  
Motor Company
- developmental states, 8, 13, 17, 92–94, 96,  
138–39, 171. *See also* economic development
- D’iakonov, Sergei, 97, 117–18, 119, 121, 124,  
125–26, 128
- Diestel, Erich (Ford AG), 131
- Dodge brothers: suit against Ford Motor  
Company, 42
- Doubleday, Russell, 56

- Douglas, C. H., 64, 65  
Drucker, Peter, 208, 209  
du Pont, Pierre, 37  
du Pont de Nemours, 37, 44, 49, 55, 56, 91  
Durant, William “Billy” Crapo, 36–38, 43, 45  
Dybets, Stepan, 50, 91, 94, 97, 104–10, 108,  
114–18, 125–26, 128  
Dyckhoff, Otto, 131–33, 161–63, 164–66, 175,  
179, 182
- economic development, 4, 7, 18, 54, 61, 72,  
89; automobile industry and, 25–27;  
“backwardness” and, 11, 16, 76–77, 89;  
“catch-up” and, 11, 16, 92–94, 214, 224n10;  
competition over, 3, 11, 15–17, 92–94,  
132–33, 138, 144, 207, 211, 213, 216–17;  
Fordism and, 6, 58, 68, 86; in Nazi  
Germany, 12–13, 132–33, 144, 171; in Soviet  
Union, 10–12, 52, 55, 75–76, 78, 82, 84, 86,  
92–96, 97–98, 102, 132–33, 213–15, 222n36;  
transfers of technology and, 8, 101, 103–5,  
216–17; in United States, 25–27, 48.  
*See also* developmental states
- economic policy, 16, 95, 127, 134, 139, 146.  
*See also* New Economic Policy (NEP)
- economics, 3, 4, 53, 66, 68, 69, 92
- Edison, Thomas, 63
- electricity, 230n34
- engineers, 2, 4, 8, 13, 19–21, 28, 30–35, 44, 50,  
52, 60–65, 68, 85, 90–91, 130, 137, 212; in  
Nazi Germany, 33, 50, 131–32, 139, 145–46,  
158, 160–68, 170, 174–75, 177, 179–82,  
184–86, 188–95, 206; in Soviet Union, 13,  
33, 79–80, 86–88, 93–95, 97, 102–7, 110–19,  
123–24, 127–30, 198, 200–204, 206, 212
- Erhard, Ludwig, 211
- Ermanskii, Osip Arkad’evich, 80, 84, 86, 88
- Ethiopia: Italian invasion of, 9
- European Productivity Agency, 209–10
- Evans, R. K. (General Motors/ Opel AG),  
131, 151
- exports, 8–10, 14, 25, 210; Germany and, 61,  
68–70, 72, 133–34, 136–37, 140, 142, 154,  
156–58, 160, 162, 164, 169–71, 210–12, 216;  
Global South and, 9, 15, 250n102; Soviet  
Union and, 10–11, 17, 95–96, 102–4, 114–17,  
213, 215, 271n26. *See also* balance of  
payments; foreign exchange; imports
- Faldix, Gustav, 60
- fascism, 1, 2, 4, 10, 15, 20, 73, 165, 207;  
Gramsci on, 78, 88
- Feder, Gottfried, 51–52, 61–63, 65, 66, 69
- Fiat, 3, 14, 20, 90–91, 97, 130, 137, 141, 214,  
248n52
- five-dollar day, 38–41
- Five-Year Plan: First Five-Year Plan  
(1928–1932), 11, 12, 78, 80, 91–97, 98, 101–4,  
115, 121, 127, 128, 196; Second Five-Year Plan  
(1933–1937), 116, 118, 119, 124, 128; Third  
Five-Year Plan (1938–1942), 126, 129;  
Eighth Five-Year Plan (1966–1970), 214
- flow production, 20, 32, 88, 177, 179; at Ford  
Highland Park, 57; at Ford River Rouge,  
22; at Gaz (Gorky Automobile Factory),  
119, 124–30, 201, 203–4, 206; in Germany,  
140–41, 172, 211; and labor coercion,  
189–92; and labor mobilization, 32–33,  
179; at Opel Brandenburg plant, 136; in  
Soviet Union, 85, 87, 88, 107, 123; at  
Volkswagen, 165, 168, 211; and World War II,  
172, 176, 180–81, 188–92, 194. *See also*  
assembly lines; conveyors; Fordism;  
mass production
- Ford, Edsel, 21, 42, 46, 117, 146, 151, 156–57,  
210, 248n53
- Ford, Henry, 19, 28, 29, 30–31, 38, 40, 42, 46,  
47, 101, 155; and anti-Semitism, 52, 64;  
assembly lines and, 31; award of Grand  
Cross of German Eagle to, 168–69; global  
reputation of, 64–65; leadership of, 29,  
44, 61–62; mass production vision of, 7,  
208; neoproducterism of, 88; Selden  
patent and, 38; service ideology of,  
65–66. *See also* *My Life and Work* (Ford)
- Ford, Henry, II, 209
- Ford AG (Cologne), 146, 150–51, 155, 157–58
- Ford Foundation, 210

- Fordism, 3, 12, 14, 17, 26, 33, 39, 62, 72, 88–89, 180, 216–17; concept of, 3–8, 208; definitions of, 3–8; and development competition, 11, 17, 217; at Gaz (Gorky Automobile Factory), 119, 125, 127–30; in (Nazi) Germany, 60, 139, 140, 184, 189, 192, 211; global reception of, 55; Gottl-Ottlilienfeld on, 66–68; Gramsci on, 72–75, 78, 89; Hitler on, 69–72, 88–89, 144; and labor mobilization, 119; military history of, 7–8; postwar, 18, 207, 215–16; Soviet debate on, 80–87, 89; in Soviet Union, 96–97, 133, 214; versus Taylorism, 33, 67, 128. *See also* Gramsci, Antonio: “Americanism and Fordism”; post-Fordism
- Ford Motor Company, 23, 39–40; automation and, 212–13; conditions at, 48, 67; economic policies of, 104; expansion of, 6; financial challenges of, 55–56; financial practices of, 45–46, 47, 57; versus General Motors, 43–48; global plants of, 14; Italian operations of, 14; labor force at, 39, 209; lawsuit against, 42; origin of, 29; personnel exchanges with, 110–15; as “productive organization,” 58, 72, 209; profit use of, 42; Selden patent and, 38; Sociological Department at, 38–39, 41, 56; stockholders and, 42; unions and, 49; *Vesenkha* and, 100–101; wages at, 38–41, 47. *See also* Ford, Henry; Highland Park (Ford plant); *My Life and Work* (Ford); River Rouge (Ford plant)
- Ford School, 39
- foreign exchange, 8, 10, 14, 16, 170; and Nazi economic policy, 134, 136, 139, 142, 154, 156, 157, 160, 169; and Soviet industrialization, 10, 93, 95, 103, 113, 116, 127, 128, 214; Stalin on, 116. *See also* balance of payments
- foreign specialists: in Soviet Union, 92, 111–13
- foundries, 20, 22, 27, 30, 33, 106–7, 124, 140, 165, 177, 179, 180, 200
- France, 2, 14, 137–38, 141
- front brigades: in Soviet Union, 201, 203. *See also* Stakhanovism
- Frydag, Karl, 187, 190, 192
- Galamb, Joe, 21
- Gastev, Aleksei, 77, 80, 81, 85–87
- Gaz (Gorky Automobile Factory), 3, 13, 109, 120, 122, 198, 199, 201, 202, 204; attack on, 200; automobile production at, 118; challenges of, 124–25, 126, 203; conditions at, 119, 200; description of, 129–30; flow production at, 128–30, 203–4, 206; front brigades at, 201, 203; growth of, 50, 117–27; labor force at, 120–21, 127, 200, 201; norms and, 123; production figures of, 129; Stakhanovism and, 121–24; Taylorism and, 128; war production at, 197–205
- General Motors (GM): factory of, 20–21; female employment at, 32–33; financial practices of, 45, 46–47; versus Ford Motor Company, 43–48; founding of, 36–38; Germany and, 136–37, 152, 153–54, 156–57, 169–70; global plants of, 14; investors and, 37, 47; Japan and, 138; Opel and, 133, 136–37, 140–41, 146; return on investment (ROI) at, 45, 234–35n101; stockholders of, 45; strikes and, 49; technology transfers from, 161; vision of, 48–49; wages at, 43
- German Labor Front, 50, 69, 143–44, 164, 166–68, 177, 212
- Germany: Allach (BMW plant), 190–91, 193; autarky and, 10, 71–72; automobile production statistics, 139–40; Aviation Ministry, 180–81, 182; Brandenburg, 152, 153, 158, 159, 160, 161; Cologne, 146; development deficit of, 133; migration of engineers to, 132; exports of, 61, 68, 70, 134, 160, 170, 210–11; flow production in, 140–41; Great Depression and, 9; Hamburg, 150–51; industrialization of, 133; “people’s car,” 141–42; and rationalization, 172, 173–75; Rüsselsheim, 160; socialism and, 65; wages in, 70. *See also* General Motors (GM); *My Life and Work* (Ford); Nazi Germany; Volkswagen
- Gesell, Silvio, 63–64
- globalization, 3, 5, 17, 216–17
- gold standard, 9, 10, 15, 54, 62–64

- Göring, Hermann, 154, 166, 172–74, 182–84, 189, 194–95, 253n9
- Gorky Automobile Factory. *See* Gaz (Gorky Automobile Factory)
- Gosplan, 97–98
- Gottl-Ottlilienfeld, Friedrich von, 4, 66, 67–68, 69, 88
- Gramsci, Antonio, 4, 60, 72–79, 88–89, 214; “Americanism and Fordism,” 4, 72–79; *Prison Notebooks*, 73, 74
- Great Depression, 3, 6–12, 15–17, 24, 137, 207; in Germany, 61, 71, 134, 140–41, 145–46, 157, 162, 177; and Soviet Union, 96, 110, 115; and US automobile industry, 49–50
- Great Merger Movement, 7, 36
- Guarneri, Felice, 10
- Guyot, Yves, 53
- Hamburg (Germany), 150–51, 152, 153, 155, 156, 188
- Heydekampf, Gerd Stieler von, 162–63, 175, 179, 182, 195, 260n122
- Highland Park (Ford plant), 2, 34, 39, 42, 57, 80, 165. *See also* Ford Motor Company
- Hitler, Adolf, 51, 60, 131, 135, 150, 152, 210; on America, 69–72, 88, 144; and American business, 136–37, 148; Automobile Exhibition and, 142–43; Automotive Association and, 163; on Fordism, 69–72, 88–89, 144; on mass production, 205–6; *Mein Kampf*, 69; military-economic strategy of, 12, 173; and *My Life and Work*, 69–70; and Volkswagen, 3, 131, 144, 163–64, 211; and war economy, 174, 185
- Höhne, Otto, 168, 212
- Howard, Graeme (General Motors/ Opel AG), 154–55, 258n81
- human relations, 209–10
- IBM, 136, 146, 169
- imports: Germany and, 134, 141, 158, 211; Soviet Union and, 95, 97, 115–16, 128, 213; of technology, 95, 97, 102, 116, 127, 244n10; United States and, 210. *See also* balance of payments; exports; foreign exchange
- industrialization, 18, 52, 215; Germany and, 133; Midwest and, 27–29; Soviet Union and, 10, 11–12, 76, 79–80, 85, 86, 91–97, 102–5, 113, 116, 127, 197, 214, 216, 222n36; technological innovations and, 28; United States and, 23–24, 33, 54
- “industrial self-responsibility”: in Nazi Germany, 135, 185–86, 195, 205
- inflation, 5, 8, 41, 140
- Italy, 4, 8, 9, 10, 20, 191; automobile industry in, 14, 90, 137, 141; Gramsci and, 73, 75, 76, 78; postliberal right in, 54; technology transfers and, 62
- Japan, 9, 13, 15, 176; automobile industry in, 97, 138, 170; reception of Gottl-Ottlilienfeld in, 66, 88; reception of *My Life and Work* in, 52–53; postliberal right and, 54; Walt Rostow on, 222n3; technology transfers and, 3, 62
- Joy, Henry, 29
- Junkers, 146, 180–81, 184, 186, 187, 190, 194, 253n9
- Kahn, Albert, 21, 91, 106
- Keppler, Wilhelm, 146, 148, 149, 151–53, 154, 156, 163
- Keynes, John Maynard, 1–2, 55
- Khrushchev, Nikita, 213–14
- Knights of Labor, 40–41, 59, 232nn69–71
- Knudsen, William, 43, 154, 258n80
- Köttgen, Carl, 61
- Kruger, A. M., 114–15
- Kuntze, Fritz, 165–68
- labor force, 22; African Americans in, 32; coercion of, 39, 66, 78, 167, 175, 189–92, 216; at Ford Motor Company, 39, 49, 209; at Gaz (Gorky Automobile Factory), 113, 119–21, 126–27, 198, 200, 201, 204; in Nazi war production, 189–92, 194; prisoners of war (POWs) in, 190–91; in Soviet Union, 76, 79, 85, 112, 197; women in, 32–33, 93, 120, 127, 192. *See also* unskilled labor



- labor turnover: at Ford Highland Park, 39;  
at Gaz (Gorky Automobile Factory),  
119, 121, 125, 126, 203, 204; in Nazi war  
production, 194; in Soviet industry, 76
- Lavrov, N. S., 80–81, 82, 86
- Lebensraum*, 10, 70–72, 140, 205
- Lenin, Vladimir, 12, 76, 87, 90, 98
- Liebold, Ernest, 51, 55
- Lipgart, Andrei, 114
- Loskutov, Ivan, 97, 126, 213
- Lüddecke, Theodor, 12, 68–69, 71, 88
- Luftwaffe, 173, 183, 200
- machine tools, 21, 22, 91, 130, 212, 230n34;  
at Gaz (Gorky Automobile Factory),  
112, 119, 128, 206; in Germany, 133, 136,  
161–62, 167, 169, 170; in mass production,  
31–32, 84; at River Rouge, 107, 109, 117;  
in Soviet Union, 92–93, 96, 106; in war  
production, 174, 179, 180, 181, 182, 187–88,  
193, 194, 196
- Maier, Charles S., 17–18
- Marshall Plan, 209
- Martin, P. E., 33–34, 46
- mass production, 3, 5–8, 13, 18, 39, 53, 130,  
216; aircraft engines and, 186; economic  
development and, 7, 26, 132; economies of  
learning in, 35, 175, 193–95; economies of  
scale in, 23, 26, 32, 35, 43, 162, 211; elements  
of, 30–35; five-dollar day and, 40–41;  
Henry Ford and, 38, 152; at Gaz (Gorky  
Automobile Factory), 115, 126, 201, 203–4,  
206; in Germany, 133, 134, 139, 140, 144, 154,  
157, 164, 170; Hitler on, 205–6; manage-  
ment and, 208; mechanization of, 31–32,  
66, 84, 124, 128; *My Life and Work* and,  
57–58, 88, 209; at Opel, 146, 158–60, 162;  
postliberal right and, 62, 65, 68–70, 72;  
post–World War II, 207–8; skill levels in,  
35; Soviet debate on, 80, 84, 86–87; in  
Soviet Union, 93, 97–100, 127, 197, 206; and  
US automobile industry, 20, 22, 23, 25–26,  
29, 30, 37, 38, 43, 48–50; in World War II,  
172, 174–76, 180, 182, 184, 193–95, 206.
- See also* assembly lines; flow production;  
unskilled labor; war production
- Mayr, Hans, 132, 165, 167, 175
- McNamara, Robert, 209
- Mein Kampf* (Hitler), 69
- Mezhlauk, Valerii, 100, 101, 117, 214, 248n53
- Midwest (United States), 27–28, 36–43
- Mikhailov, Arsenii, 12, 80, 85, 87
- Mikoyan, Anastas, 117
- Milch, Erhard, 182–84, 183, 190, 204–5
- Ministry of Munitions (Nazi Germany),  
174, 184–85, 186, 187, 188, 190. *See also*  
Speer, Albert
- Mirafiori (Fiat plant), 3, 14, 20, 90, 130, 137,  
223n43
- Model T, 2, 29, 30, 45, 57, 84, 141, 164, 211
- modernization theory, 7, 15–16, 18, 26, 30,  
215, 225n53
- Moellendorff, Wichard von, 65
- Monteiro Lobato, José, 53, 60
- Mooney, James D., 146, 147, 148, 150, 152, 154,  
155, 157, 163, 258n81, 258n82; award of  
Grand Cross of the German Eagle to,  
168–69
- Morgan, J. P., 37, 45, 55, 103
- Moscow Automobile Society (AMO), 97,  
100, 111, 115
- Muscle Shoals (Alabama), 62–63
- Mussolini, Benito, 1, 3, 14, 73, 137
- My Life and Work* (Ford), 4, 55–60, 71, 83,  
150, 209; Gottfried Feder on, 52; global  
reception of, 53–55, 59–60, 62, 64, 87–88;  
Gottl-Ottlilienfeld on, 66–68; Gramsci  
and, 73, Hitler and, 69–70; Soviet  
reception of, 82–83; Weimar reception  
of, 60–62, 65, 72
- National Association of Manufacturers  
(United States), 50, 235n105
- National Socialism, 15, 134, 143, 166, 179, 205
- National Socialist Motor Corps, 142
- Nazi Germany, 3, 8, 15–16, 17, 25, 132; aircraft  
production in, 186–88, 192–95, 193;  
engineers in, 179; foreign exchange

- management in, 134; industrial upgrading in, 157–63; labor force in, 189–92; multinationals in, 134–39; munitions complex of, 187; political economy of, 134–39; rearmament economy in, 160–61; war economy of, 189; war production in, 173–74, 179–84, 185, 186–88, 192–95.  
*See also* Germany
- New Deal, 25, 50, 60, 63, 157
- New Economic Policy (NEP), 76–79, 94, 95, 97, 99, 101–2
- New York City, 24
- New York Times*, 24, 40, 41, 60, 169
- Nissan, 13, 138
- Nitrogen Engineering Corporation, 248n52, 248n53
- Nordhoff, Heinrich, 162–63, 175, 195, 211–12
- Olds, Ransom, 23, 27, 28, 29, 36, 38
- Opel AG, 50 131, 142, 177, 211; Brandenburg plant, 152, 153, 154, 158, 159, 160–63, 170, 182, 184, 211, 257n73; customer base of, 140; expansion of, 158; flow production at, 194; General Motors and, 133, 136–37, 140–41, 146; military production at, 160–61, 163, 175, 182; Nazi political economy and, 150, 153, 154–54, 156, 158–62, 169, 170, 258n81; “people’s car” and, 146, 148, 151, 163; Rüsselsheim plant, 146, 152, 154, 158, 160, 161; technology transfers to, 161. *See also* General Motors; Mooney, James D.; Osborn, Cyrus
- Ordzhonikidze, Sergo, 102, 116, 118, 119, 125
- Osborn, Cyrus (General Motors/ Opel AG), 154, 155, 158, 160, 162, 258nn81–82
- Osinskii, Nikolai, 86, 96–101, 103, 104, 113, 115, 117, 128, 133, 247n33
- Packard, 29, 180
- people’s car, 72, 131, 141–42, 143–44, 145–53, 164, 181. *See also* Porsche, Ferdinand; Volkswagen
- People’s Commissariat of Foreign Trade, 100, 117, 137
- People’s Commissariat of Heavy Industry (NKTP), 91, 96, 102–3, 113–14, 118
- Pietzsch, Albert, 135
- Pingree, Hazen, 28
- Poissy (Ford plant), 137–38
- Polanyi, Karl, 1, 18, 226n64
- Pontiac (General Motors plant), 20–21, 179
- Popp, Franz-Josef (BMW), 145, 181, 184
- populism, 26; Henry Ford and, 7, 63, 216; Ford Motor Company and, 38–42, 44, 48, 128; in Midwest, 3, 27–29, 36, 55; *My Life and Work* and, 59; postliberal right and, 62, 64, 82; in Soviet rationalization debate, 80, 121, 241n82
- Porsche, Ferdinand, 20, 91, 166, 177, 178, 179; Detroit sojourn of, 50, 131–32, 164–65; and “people’s car,” 144, 145, 163–64, 211; and Volkswagen, 164–65, 167
- post-Fordism, 4, 5, 215–16
- prisoners of war (POWs): in Nazi war production, 167, 173, 189–91
- production. *See* flow production; mass production; war production
- productivity: in American automobile industry, 25, 30; flow production and, 194; Henry Ford on, 46–47, 49; at Ford Motor Company, 39; at Gaz (Gorky Automobile Factory), 121, 123, 126, 129, 199; in German automobile industry, 141; human relations and, 209–10; in mass production, 43, 230n37; *My Life and Work* on, 57, 61; Nazi ideology and, 72; in Nazi war production, 189, 192, 193, 194, 204; politics of, 207–8; in Soviet industry, 76, 79, 82, 123, 204; at Volkswagen, 212
- Rabchinskii, I. V., 83
- Rathenau, Walter, 65
- rationalization, 78–79, 81–87, 172, 173–75, 176
- Regulation Theory, 4–6, 75, 215, 230n37
- Reich Association of the German Automobile Industry (RDA), 139–40, 145–46, 148, 154, 155, 163, 164, 177
- Renault, Louis, 14

- repairs, 54, 60, 61, 63, 134
- Reuther brothers, 112
- Riboldi, Ezio, 73
- Rivera, Diego, 21
- River Rouge (Ford plant), 2–3, 13, 19, 21–22, 23, 33, 38, 42, 45, 50, 51, 97, 209; expansion of (1935), 50; flow production at, 21–22; as model for Gaz (Gorky Automobile Factory), 91, 93, 100–101, 126–27, 130; Soviet engineering delegations at, 90, 103–10, 113–15, 117, 128–29; as model for Volkswagen plant, 139, 164; Volkswagen recruitment campaign at, 131–32, 164–66, 212; working conditions at, 48. *See also* Ford Motor Company
- Robinson, Robert, 112
- Rockefeller, John D., Jr., 41
- Roosevelt, Franklin, 208
- Rozenblit, N. S., 84
- Rüsselsheim (Opel plant), 146, 152, 154, 158, 160, 161. *See also* Brandenburg, Germany: Opel plant in; Opel AG
- Russia. *See* Soviet Union
- Schacht, Hjalmar, 10, 131, 134, 156, 169, 258n81
- Second Five-Year Plan. *See* Five-Year Plan
- Selden patent, 38
- Sheeler, Charles, 21
- skilled core: at Ford River Rouge, 132, 165; at Gaz (Gorky Automobile Factory), 115, 200, 203, 204; in mass production, 35, 93, 175–76; in Nazi war production, 194. *See also* labor force; unskilled labor
- Sloan, Alfred P., 19, 44–48, 49, 50, 154, 157, 253n84
- socialism, 53; “actually existing,” 18; Henry Ford on, 40; and Fordism, 73, 75; and NEP, 76, 79; rightwing ideology of, 62, 65–66, 68, 69, 72; “socialism in one country,” 94; and Soviet industrialization, 96, 113, 123, 126; and Soviet rationalization debate, 55, 76, 77, 81–87, 88. *See also* National Socialism
- Sociological Department (Ford Motor Company), 38, 39–41, 56. *See also* five-dollar day
- Sombart, Werner, 65–66, 169
- Sorensen, Charles, 46, 101; aircraft industry and, 180; five-dollar day and, 40; and Ford AG, 146, 151, 156–57; role of at Ford Motor Company, 33–34, 44; and Soviet engineering delegations, 90–91, 100, 104, 117, 128
- Soviet Union: agriculture in, 95; aircraft production in, 196–97; automation in, 212–13; automobile production statistics, 118, 213–14; *Avtostroï*, 91, 104, 106–7, 109–11, 116; Central Institute of Labor, 81–82; collectivization of agriculture; 93–94, 95–96, 121, 245n17; economic development of, 10–12, 52, 55, 75–76, 78, 82, 84, 86, 92–96, 97–98, 102, 132–33, 213–15, 222n36; exports of, 10–11, 17, 95–96, 102–4, 114–17, 213, 215, 271n26; famines in, 94, 213; foreign exchange crisis (1931), 115–16; foreign specialists in, 92, 111–13; imports of, 95, 97, 115–16, 128, 213; industrialization of, 10, 11–12, 76, 79–80, 85, 86, 91–97, 102–5, 113, 116, 127, 197, 214, 216; motorization of, 97–101; *My Life and Work* (Ford) and, 82–83, 83; postwar conditions in, 213; socialist rationalization and, 78–79, 81–87; Taylorism and, 87; technical assistance agreements of, 91–92, 100, 101–5, 113–16, 118, 127, 128, 214; technology transfers and, 107, 244n10, 248n52; *Today and Tomorrow* (Ford) and, 82–83; Tolyatti, 214; *Vato* (All-Union Automobile and Tractor Association), 100–101; Vaz plant, 214; *Vesenkha*, 91, 97, 98, 100–105, 106, 109, 111, 114, 116, 133; war preparation plans in, 196–97; war production in, 195–205. *See also* Five-Year Plan; Gaz (Gorky Automobile Factory); New Economic Policy (NEP); People’s Commissariat of Heavy Industry (NKTP)

- Speer, Albert, 135, 174–76, 184–86, 187, 193, 205, 206, 226n85
- Spengler, Oswald, 65
- Stakhanov, Aleksei, 121
- Stakhanovism, 119, 121–24, 128, 203
- Stalin, Joseph, 10, 77, 196, 213, 222–23n36; on Americanism, 88; and foreign exchange crisis (1931), 116; geoeconomics of, 213; and 1937/38 purges, 50, 94, 97, 117; and social revolution, 79, 114; and Soviet industrialization, 76, 79, 86, 92, 94–96, 127, 132; on Soviet underdevelopment, 11, 96
- Stalinism, 15, 89, 196
- Standard Oil, 136
- steel industry: in Nazi Germany, 133, 134, 135, 165, 188, 189; in Soviet Union, 86, 91, 93, 96, 98, 103, 197; in United States, 23–24, 37, 43
- Stoewer, 152–53, 156
- Strumilin, Stanislav, 99
- tariffs, 8, 9, 52, 210; on automobiles, 14, 140–41, 211
- Taylor, Frederick Winslow, 33–34, 66–67, 84, 86, 88. *See also* Taylorism
- Taylorism, 6, 26; versus Fordism, 26, 33, 67, 128; at Gaz (Gorky Automobile Factory), 128; Gottl-Ottlilienfeld on, 66–67; Soviet debate on, 75, 80–81, 84, 87, 128
- technical assistance agreements (Soviet Union), 91–92, 113, 115–16, 127, 214; with Ford Motor Company, 96, 100, 101–5, 114, 118, 128
- technology transfers, 2, 11, 13, 14, 16, 62, 89, 207, 210, 254n26; Ford Motor Company and, 101–5, 107; General Motors and, 161; Nazi Germany and, 139, 161, 176; Soviet Union and, 92–93, 98, 102, 107, 112, 113, 115, 133, 244n9–10, 248n52
- Thomas, Georg, 154, 185
- Today and Tomorrow* (Ford), 52–53, 60, 73, 82–83
- Tomsky, Mikhail, 79
- totalitarianism, 15
- Toyota, 3, 13, 138
- Trotsky, Leon, 75, 76–77, 78, 85, 90, 94, 95, 102
- Tugwell, Rexford, 60
- Udet, Ernst, 154, 173, 181, 183
- United States: automobile industry in, 14, 25, 43, 109, 181; engineering exchanges with, 110–15; exports and, 8; global hegemony of, 8–9, 25, 54, 207, 209–10, 215; Great Lakes basin, 27; imports of automobiles, 211; mass production in, 22–23; Midwest, 27–28, 36–43; Muscle Shoals, Alabama, 62–63; New Jersey, 24; Pennsylvania, 24; politics of productivity in, 207–8; Second Industrial Revolution and, 7, 23–24, 54, 70; steel industry in, 23–24; wages in, 24; World War II and, 172–73, 195, 207
- unskilled labor, 23, 49; at Ford Motor Company, 38–40, 48, 58; and Fordism, 6, 32–33; at Gaz (Gorky Automobile Factory), 119–21, 125, 127, 200, 201, 204; and labor republicanism, 232n71; mobilization of, 32–33, 179, 204; Nazi war production and, 189–92, 194; in Soviet Union, 87, 93
- Vato* (All-Union Automobile and Tractor Association), 100–101, 105, 111–14, 116, 118
- Vaz plant (Soviet Union), 214
- Veblen, Thorstein, 63
- vertical integration, 2, 69
- Vesenkha* (Supreme Economic Council, Soviet Union), 91, 97, 98, 100–105, 106, 109, 111, 114, 116, 133
- Volkswagen, 14, 20, 50, 136, 182; automation at, 212; Beetle design and, 144, 163, 167, 211, 270n16; Detroit recruitment campaign of, 50, 131–32, 164–67; factory of, 3, 13, 139, 163, 167; Ford Motor Company and, 157; German-Americans at, 165–68, 179; Nazi regime and, 143–44, 145–53, 155, 177, 211; war production at, 167–68; West Germany and, 211–12, 216. *See also* Porsche, Ferdinand

- von Preussen, Louis Ferdinand, 144, 150–53, 157
- Voznesenskii, Nikolai, 11–12
- wages, 5, 23, 24, 43, 216; Henry Ford on, 46–47; at Ford Motor Company, 38–41, 49, 110; Fordism and, 6, 39, 73, 230n37; at Gaz (Gorky Automobile Factory), 112, 123, 125; General Motors and, 43, 47, 48; Gottl-Ottlilienfeld on, 67; Hitler on, 70; Knights of Labor and, 232n69; *My Life and Work* on, 57–59, 61, 83–84; in Soviet Union, 96; at Volkswagen, 211. *See also* five-dollar day
- Walcher, Jakob, 82
- Wall Street Journal*, 37, 41
- war production: at Gaz (Gorky Automobile Factory), 197–205; Nazi Germany and, 173–74, 179–84, 185, 186–88, 192–95; Soviet Union and, 195–205; unskilled labor and, 189–92; at Volkswagen, 167–68
- Watson, Thomas (IBM), 169
- Werlin, Jakob, 164–65
- Werner, Joseph, 132, 165, 167, 168, 212
- Werner, William, 178, 183; at Auto-Union, 140, 177; background of, 177, 179; Detroit sojourn of, 20–22, 24, 26, 32, 38, 50, 51, 131–32, 133, 139, 174, 179; and Nazi war production, 174, 175, 176, 179–84, 186–89, 190, 191, 192, 193, 194–95, 197, 202
- West Germany, 210–11, 216
- Wibel, A. M., 46, 152
- workforce. *See* labor force
- World War I, 8, 11–14, 16, 25, 32, 41, 62, 76, 165, 177
- World War II, 4, 6, 11, 13, 75, 117, 173; Fordism and, 3, 35, 97, 119; Gaz (Gorky Automobile Factory) and, 115, 119, 197–205; Nazi Germany and, 173–74, 179–84, 185, 186–88, 192–95; Soviet Union and, 196, 204, 213, 214, 216; United States and, 207. *See also* war production