Chapter 2

Promoting a Skilled Workforce

*M*aintaining order and containing political conflict by means of public "organization" of the labor market was but one strand of the German project to optimize the workforce. Another one—institutionally anchored elsewhere and inspired by different ideas—aimed to create a high-skills workforce. As with public control of the labor market, these efforts began locally. They also coalesced around a guiding vision, in this case not that of organization, but of the independent, responsible worker and citizen. And, like the steps to bring the labor market under public control, the program of creating a high-skills workforce only subsequently became the focus of greater attention from Berlin authorities, though in this case a decade later, from 1900 to 1910.

For municipal authorities, social reformers, and interest groups in the late nineteenth century, Germany's rapid but uneven industrialization and tumultuous urban growth not only posed the challenge of helping people find work, any work, it also raised the question of what work they should go into, what kinds of workers, and even what kind of citizens, they should become. These changes were increasingly disrupting previous patterns of finding work and vocation. While migration and job changing earlier had been by no means unfamiliar phenomena,[1] in the pre-industrial age town or village, children usually had grown up in family-run businesses, including, of course, on farmsteads, or at least in neighborhoods small enough to give them some idea of their future work. The older paths to a vocation and position—following in the footsteps of the father or uncle, relying on local guilds—now became increasingly irrelevant. The new factories and industries produced their wares outside the ear- and eyeshot of households; the worlds of work and daily life increasingly became separated. Moreover, within

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the factory walls, the number and variety of new jobs and vocations multiplied rapidly. The invention of new materials and products, technological progress, and the increasing division of labor in large-scale factories transformed many craft-based positions beyond recognition and created new ones, both skilled and unskilled. As a result, the choice of a particular line of work—whether through an apprenticeship in a vocation or paid labor—was itself increasingly haphazard. In the eyes of the reform-minded Central Association for the People's Welfare, which devoted its 1911 conference to vocational training:

> everything that appears necessary for an appropriate selection of a vocation and apprentice position is today to the greatest extent not considered and impossible to consider. Not only the disappearance of all tradition, but also the lack of any relationship to business life makes a vocational choice based on genuine inclination impossible…Thus it is chance that dominates everything.[2]

All too often, chance meant that young Germans chose unskilled work—which paid a wage immediately—over apprenticeships, whose rewards only accrued over time. Such decisions affected not only individual life chances, but also the nation's domestic politics and international standing.

Urban Reformers' Abiding Vision of a Deproletarianized Society

For some decades already, alarmed urban reformers had been at work trying not only to bring more order into vocational choice, but in particular also to steer young people away from unskilled work. The municipal concern described in the previous chapter to "organize" the labor market, especially for the unemployed or unskilled, was but one strand of local reform. Another strand centered on skilled work. While the urban reform movement would direct, over time, its attention and efforts to an ever-growing number of realms, vocation remained at the core of civic reform. What vision inspired their abiding commitment to the skilled worker? What concrete forms did it take?

Again, research on Frankfurt, one of the best studied Wilhelminian cities, gives us a sense of the German *Bürgertum's* vision of reform and role in improving the German workforce.[3] Frankfurt's reforms, like those at the national level, reflected a range of means and sustaining ideals, including top-down protection and guidance of the weak (for example, in the form of a city doctor or public supervision of wayward children) and, especially, the encouragement of economic democracy (i.e., industrial courts or parity-based labor offices). However, the city's middle-class leaders most insistently aspired to a society of economically independent citizens. Such wherewithal, in their eyes, formed the very bedrock of citizenship.

As early as the 1830s and 1840s, when debates about free trade became acute, a broad consensus had formed in the Frankfurt *Bürgertum* around a "mediating" policy—neither simply protectionist nor laissez-faire, but one of helping crafts-

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men adapt to the new competition and incipient industrialization. A cooperative bank was set up to help with productivity-enhancing investments, but most of the attention went into educational measures coordinated by an "industrial association."[4] Throughout the second half of the century, various measures promoted "mechanization, specialization, and improved quality" among artisans and the small industry that dominated the city's economy.[5] From the 1890s, Frankfurt encouraged the adoption of the small electrical motor, which promised to level the playing field for small, independent producers.[6]

The Frankfurt *Bürgertum* applied their vision of fostering an economically independent citizenry very broadly—not only to craftsmen, but also as much as possible to the flood of unskilled industrial workers pouring into the booming city—and especially to future workers, i.e., schoolchildren. In addition to the measures geared generally to education,[7] Frankfurt reformers promoted vocational training in particular. The philanthropic organization Youth Welfare in 1888 began combining apprenticeship-placement with individual counseling.[8] In the same years, a decade before the reform pedagogue Georg Kerschensteiner raised the issue nationally, the city's continuation schools offered schoolchildren craft and drawing lessons, through which, it was hoped, they would gain insight into their own "endowments, inclinations, and abilities."[9] The city's children's nurseries followed suit.[10] Despite the city's financial constraints, its welfare office offered indigent families an annual sixty-mark stipend if they enrolled their sons in apprenticeships rather than putting them to work in unskilled positions.[11] In 1890, the city set up, alongside the already extant, privately run Polytechnic Association, an industrial continuation school, which boys could attend after finishing basic schooling at age fourteen. It was hoped that this institution would channel them away from unskilled work and into a *Beruf*. The Frankfurt reformers advocated skilled work as both good economic and good social policy to much broader audiences as well. When he was in the directorate of the Association of German Labor Exchanges, Karl Flesch, more consistently than any other member, pressed labor exchanges to expand beyond their usual clientele of unskilled workers, and into placing apprentices.[12]

Manfred Hettling's impressive study of *bürgerliche* political ideas in a city on the other end of the Reich, Breslau, suggests that a program built around the central importance of economic independence was not limited to Frankfurt.[13] In the Silesian city, whose economy and politics, much like Frankfurt's, was dominated by trade and small-scale industry and left-liberalism, "the individual *Bürger* was still the basic element of the *bürgerliche* social model even at the end of the [nineteenth] century," despite coming under increasing strain.[14] The Breslau *Bürgertum's* individualism "manifested itself in the suggested answers with which they wanted to respond to the social problems of individual groups." Though Hettling does not explore the social policies toward the working class, he suggests that in regard to craftsmen, at least, Breslauer middle classes, especially the dominant Left Liberals, advocated associations and improving education and training, much like in the city on the Main.[15]

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These detailed case studies of particular cities suggest that, in parts of Imperial Germany, the old *Bürger* concern to preserve and foster individuals' economic independence, including even that of the incipient proletariat, survived into the early twentieth century. They offer clues to the motivations of urban reformers elsewhere, who were taking similar steps to educate and train young people. As early as the first decades of the nineteenth century, philanthropic and business circles in some German cities, particularly in the southwest, established polytechnic associations, which among other things offered practical training to youths just out of school. By the 1870s, some cities had converted these associations into public institutions. In the same decade, a few German cities and states even were making attendance at continuation schools mandatory.[16] In Prussia, the legal basis to make attendance obligatory was lacking. However, the Prussian Trade Ministry, drawing explicitly on southern German models,[17] became a powerful advocate of such schools. All German states witnessed a rapid expansion of the number of such schools and of their attendees between 1885 and 1910. Nowhere was the growth so rapid as in Prussia, however, as we will explore further below.

Many municipal officials and social reformers came to see industrial continuation schools and public labor exchanges by themselves as insufficient. Offering basic vocational schooling, even mandating it, and helping match adult workers to job openings, the reformers concluded, did not by themselves lead to high levels of skilled workers. Rather, experience suggested that the "free choice" of the youths in deciding what work or training to seek produced undesirable results. It led, according to participants at the 1911 conference on the apprenticeship system, already mentioned above, to vocation "by chance"[18] and the absolute predominance of "external economic influences."[19] Too many youths, lured by the prospect of earning money right away, became unskilled laborers. When they did choose an apprenticeship, it was often in a line of work that promised to provide them with fancy clothing or social prestige.[20] Due to such temptations and to the widespread ignorance of the working world, too few youths made a proper choice of a vocation, as the reformers saw it—one based on genuine inclination and hence likely to contribute to long-term individual prosperity and social stability.[21] Firmer guidance of vocational choice would be therefore necessary.

For nearly two decades, urban institutions and private associations already had been at work, attempting to correct the perceived flaws of free vocational choice. In many reformers' eyes, the schools were the natural site for vocational guidance. Schoolteachers, it was thought, could best evaluate the abilities and interests of their students and should point them toward a suitable vocation. School physicians could determine whether they had the physical aptitude for particular lines of work. Increasingly after 1900, boys' crafts class gained popularity as a means of familiarizing youths in school with materials and tools that they might use in a later vocation, so that they might make more informed vocational choices.

Besides the urban initiatives in places like Frankfurt, organizations within the burgeoning women's movement were pioneers. In 1898, the Association of German

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Women (*Bund Deutscher Frauen*) operated an "information center for women's occupations" in Berlin, which, in 1907, expanded its activities to include what was now called, for the first time, "vocational counseling."[22] In 1903, Hanover's Protestant Women's Association opened a "Central Office for Job Placement for Educated Ladies" that also dispensed advice on vocational choice.[23]

Whereas schools and philanthropic associations pioneered efforts to influence vocational choice, public labor exchanges began to extend their activities to this field only after the turn of the century, and even then only haltingly. For the most part, they served unskilled workers, "calling them up" in the order in which they had registered. In part, they began to concern themselves with vocational choice because companies, strategically the most important "clients" of the offices, were beginning themselves to care more about selecting workers with particular profiles. Several public labor offices extended their concerns beyond simply matching adult workers to jobs and began to coordinate youth apprenticeship-placement centrally, first in Munich in 1902, then in Strassburg in 1905, and soon thereafter in other cities.[24] These urban examples soon inspired officials at the state level to establish the same institutions.[25] By the end of the decade (1908), the first city had taken a step beyond job and even apprenticeship-placement. In Halle, the director of the labor exchange operated what he termed a "vocational office," which drew on inputs from schools, businesses, and unions in order to administer "organized vocational choice."[26] By 1911, however, no other public *Arbeitsnachweis* had followed Halle's example. In a sign of the still inchoate situation, several of the social reformers at the conference of the Central Association for the People's Welfare in that year reacted coolly to the degree of centralization in Halle.[27] Still, they all agreed that one of the urgent tasks ahead was to apply "planned organization" to vocational choice.[28]

In the same years, both the journal *The Labor Market* and the national Association of Labor Exchanges expressed similar convictions about the desirability of guided vocational choice. Yet their steps in this direction were tentative. In 1910, several authors in *The Labor Market* called for "order-bringing activity in the choice of a vocation" or for "vocational advocates" in the labor exchanges.[29] Yet, until the end of 1913, the journal continued to discuss youth-related matters under the rubric of "apprenticeship exchanges," while "vocational counseling" only appeared on the margins. Similarly, the national Association of Labor Exchanges discussed "apprenticeship placement" at its 1910 meeting—but not, however, vocational counseling. The latter was to be the topic of the conference scheduled for the fall of 1914. The events of that year overtook the plan, but the Association's new guidelines in 1915 described "apprenticeship exchange and vocational counseling" as being worthy of advancement through the labor exchanges.[30] Thus, the Labor Offices took tentative steps to expand their services beyond their main clientele, the unskilled.

On the eve of the war, a variety of parties contemplated subjecting vocational choice to greater "organization." For the urban reformers behind these efforts, steering as many youths as possible into skilled work would contribute to middle-

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class stability in a rapidly changing society. However, no one as yet had taken decisive action on a national scale.

"Help to Self-Help"

These efforts by municipal reformers and national lobbying groups would have been less consequential if they had not converged with new thinking in other camps about the social problem. Just as the idea of "organization" attracted a broad coalition of social reformers and state officials, an emphasis on helping workers help themselves within a broadly capitalist framework, and especially helping them to some kind of independence, gained ground in important quarters around 1900. The progressive Catholic social reform movement and Protestant reformers not only lent support to workers' *collective* self-help in the form of unions and economic democracy, as discussed in the previous chapter. Less conspicuously, but nonetheless significantly, they also backed efforts to encourage economically independent *individual* workers. In contrast to *Staatshilfe* and collective self-help, this strand of helping individuals help themselves has been overlooked in the literature. After 1900, these religiously inspired movements, especially the Catholic one, would join hands with the Prussian Trade Ministry to pioneer the Prussian, and then German, creation of a high-skills workforce.

In Protestant thought, of course, the independent individual retained a very central position.[31] But also among the progressive Rhineland Catholics, the new social thinking represented by Georg von Hertling and Franz Hitze could push the redefinition of solidarity and subsidiarity so far that it became a kind of incipient Christian liberalism.[32] For both Protestants and Catholics, the common goals of "deproletarianization" and the creation of responsible, more independent workers and the common means of "self-help" could point, among other measures, toward steps to encourage individual improvement. The Protestant pastor Friedrich Naumann and the Catholic social reform politician Karl Trimborn exemplified the complex ways in which individualistic strands were often interwoven with projects of collective (and even state) help. Naumann not only propagated economic democracy in the form of strong unions and constitutional factories, but, in 1907, he also helped establish the *Werkbund,* an organization dedicated to preserving and advancing "quality work," which, it was hoped, would restore individuals' "joy in work."[33] Likewise, Trimborn was pivotal in promoting the Center Party's agenda of economic democracy, for example, pressing the government in 1904 on its plans in regard to new union laws and chambers of labor.[34] In precisely the same years, however, a legislative initiative by Trimborn also gave the Prussian Trade Ministry the opportunity to become the pacesetter of efforts to create a high-skills workforce (as we will see below). These individualistic strands within both the Protestant and Catholic social reform circles would significantly augment the abiding urban vision of a deproletarianized society of economically independent *Bürger.*

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The Prussian Trade Ministry's Program to Create a High-Skills Workforce

Vocational counseling itself did not undergo the kind of national regulation before the war that job placement did in the 1910 Job Placement law. However, especially after the turn of the century, the Prussian Ministry of Trade took the lead in promoting a Prussian, and de facto a national, policy of creating a high-skills workforce. If the Reich Interior Ministry transposed urban reformers' concern for achieving stability through neutral control to the national stage, the Prussian Trade Ministry did the same for their emphasis on achieving stability through worker improvement. Even more than social stability, however, the Trade Ministry aimed with its program of creating a high-skills workforce to strengthen the country's economy in an era of growing global competition.

Germany's efforts to respond to late-nineteenth century globalization by improving its workforce have remained largely unrecognized in the scholarly literature. Attention has focused instead on the country's defensive recourse to protectionist tariffs.[35] It is time to correct this imbalance. Understanding the Trade Ministry's sustained program of improving the workforce requires a revision of our thinking about the Reich and Prussian governments' industrial policies, especially those regarding *Handwerk.*

According to *Sonderweg* historians of the 1960s and 1970s, landed interests (*Junkers*) and heavy industrialists tried to shore up their hold on power by appealing to the backward-looking, defensive strata of shopkeepers and craftsmen. The concessions to this so-called old *Mittelstand,* culminating in the 1897 restoration of modified guilds, fit into this defensive political strategy. Much scholarship of the past three decades has cast doubt on these claims. Studies have shown convincingly that the crafts sector was far more heterogeneous than earlier thought, with many segments surviving and even thriving amidst growing industry. Its moderate strand no longer rejected the trend toward large-scale capitalism, but wanted to adapt to it. Likewise, the ostensible wire-pullers of policy, the *Junkers* and heavy industrialists, were not nearly as united as once claimed.[36] The state itself, other scholars have demonstrated, was hardly the mere instrument of interest groups; ministers and bureaucrats pursued policies for multiple reasons, including what they believed was in the interest of a modernizing, powerful state.[37] David Blackbourn expresses the current revisionist synthesis when he writes that "[i]f there is a red thread that runs through state policy, it is … the recognition that a modern, efficient industry was indispensable for a successful great power." In this context, *Mittelstandspolitik,* including measures to shore up craftsmen, was "an exercise in rhetoric, not a policy designed to succeed."[38]

Recent work, however, suggests that this last claim about Germany's *Mittelstandspolitik* itself now stands in need of revision. A number of scholars have made a convincing case that at least part of the policy toward the crafts sector was not only designed to succeed, but in fact did succeed.[39] This reconceptualization of the Kaiserreich's economic policy draws, in turn, on the recently growing ap-

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preciation of the varieties of capitalism and, in particular, of the incentives problems connected with the creation of a high-skills workforce.[40] In the following pages, we build upon these arguments to grasp the purpose behind the Prussian Trade Ministry's workforce policies.

The Trade Ministry's efforts to improve worker quality had unfolded, since the 1880s, against the backdrop of overall Reich and Prussian policy on the "labor question," which initially focused on other priorities.[41] In the 1880s, when Bismarck himself headed the Prussian Trade Ministry, Germany's pioneering social insurance programs were the dominant concern. During the "New Course" of the early 1890s, which represented a response to the great miners' strike of 1889 and generally the failure of repressive policy to hamstring the SPD, Trade Minister Berlepsch concentrated on augmenting labor protection regulations and introducing labor courts.[42]

Yet alongside these more openly political measures, from the mid 1880s onward, the Prussian Trade Ministry showed a growing interest in vocational training, schooling, and counseling. The disastrous reception of German products at the 1876 World's Fair in Philadelphia—where the Berlin engineering professor Franz Reuleaux famously judged many of them to be "cheap and shoddy"—helped to crystallize growing worries about the country's competitiveness vis-à-vis the US and other European powers. This stimulated a discussion already underway among social reformers about improving worker training, as discussed earlier. More concretely, concerns about Germany's economic, and ultimately strategic, power prompted the Trade Ministry in 1884 to wrest control over the state's Industrial Continuation Schools from the Education Ministry.[43] Practical training, rather than general learning, was henceforth to be the schools' focus.[44] If a concern for *die gute Polizei* and domestic order represented one stand of Cameralist thought, this emphasis on developing the country's resources represented another.

In these decades, the Prussian Trade Ministry became the national pacesetter of the schools' expansion. The state's expenditures on vocational schooling increased twenty-fold between 1880 and 1905.[45] The number of Prussian industrial continuation schools more than tripled, rising from 664 in 1885 to 2,162 in 1910, and the number of enrollees increased six-fold, from 58,400 to 352,000. By comparison, the number of students in Bavaria and Wurttemberg roughly doubled in the same period.[46] Though the schools' curricula initially included a variety of subjects, over time the schools focused increasingly on their main task: giving their charges practical training that could prepare them for a skilled trade.[47]

From the mid 1890s onward, after the end of Berlepsch's "New Course," the Trade Ministry made the vocational training system its top priority,[48] at precisely the same moment when Prussian and Reich authorities began to turn to the regulation of the labor market. Even more than in the previous decade, concerns about German industry's competitive position with other countries, including Japan, and social Darwinian thought provided a major spur to increased state activity in this field.[49] A major step occurred with the revision of the industrial code

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in 1897, which reestablished modified craft guilds. For *Sonderweg* historians, this piece of legislation epitomized the reactionary, politically motivated nature of German *Mittelstandspolitik,* and, even for revisionists such as David Blackbourn, it only amounted to political gesturing meant to mollify the crafts sector, but not to address any real economic problems.[50] As Hal Hansen has shown, however, an appreciation of the incentives problems connected with any worker training scheme allows one to see the 1897 legislation in a completely new light.[51] Contrary to appearances, the reestablishment of modernized guilds belonged, at least in part, to a liberal economic strategy on the part of a German state intent on creating a high-skills workforce.

At the root of the "apprenticeship crisis" that had plagued *Handwerk* since the 1870s was an incentives problem. The German Empire's liberal industrial code of 1871 had abolished the guilds, which, while already in decline, had nonetheless still regulated apprenticeships and overseen certification of masters, however inadequately. In the absence of any authority to retain their apprentices at the end of their training period, masters were now even more likely than before to exploit their charges as cheap labor; with ever greater frequency, apprentices, seeing few prospects in being trained and being tempted by the initially higher wages and less onerous supervision in large industry, broke their contracts early; and, industrial employers had little way of judging the skills of those they hired away from *Handwerk.* As this game-theory informed approach teaches us, the incentive problems handicapping German vocational training in the first decades of the Kaiserreich were problems of any liberalized labor market.

The 1897 legislation began to address precisely these problems. Less than three decades after having been abolished, a modified form of the handicraft guild was reestablished at the regional level throughout Germany. Drawing on models in the southwest German states of Baden and Württemberg, these modernized guilds could establish standards for training, supervise apprenticeships and new apprenticeship contracts, and certify the results of qualifying exams. The legislation was meant not to protect *Handwerk* from competition, but rather to give artisans a chance of succeeding *in* the market. The system of standardized certification gave youths and handicraft masters the incentive to engage in vocational training. For the former, the certificates were portable, and hence valuable, attestations of the skills they had acquired. For the masters, the certificate system, coupled with new apprenticeship contracts, meant that they could count on their apprentices not running away and that, even if they could not retain them after their exams, any journeymen they hired from outside would have a similar level of training. The only apparently illiberal restoration of guilds thus provided a means of partly overcoming the disincentives to train and be trained inherent in a completely liberalized labor market.[52]

Yet if this model of collectively certifying training provided a blueprint for the future of the entire German vocational system, its realization in 1897 was only a partial success. The law established a patchwork of regional guilds, but no national framework, for agreeing on and enforcing collective training standards.

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Over the subsequent years, the restored bodies made efforts to forge ever-broader associations, but this was slow going. A much more significant limitation of the 1897 reforms, however, was the fact that they applied only to handicrafts and not to industry. The main employer of skilled labor and the trainer, by 1907, of fully one-third of all skilled workers[53] played no role in collectively setting and certifying skill levels. This was partly due to the mistrust between handicrafts and industry,[54] and partly to industry's ambivalence about the future role of the skilled worker (see below). These limitations, however, should not obscure the 1897 legislation's real successes. In the short term, it began to alleviate the "apprenticeship crisis" in *Handwerk.* In the long term, the 1897 legislation's certification procedures would provide a model for a general solution to the incentives problem of creating a high-skills workforce, one that would be implemented starting in the late 1920s.

The revival of the guilds in the modified industrial code hardly exhausted Prussian/German efforts to create a high-skills workforce. The next decade and a half witnessed a sharp rise in the activities of the Prussian Trade Ministry, even as the disputes over training and youths, between crafts and industry, and within the Prussian government grew fiercer. The founding of a Prussian State Industrial Office (*Landesgewerbeamt,* LGA) in 1905 was a milestone, for the LGA quickly became the general staff coordinating efforts to develop a skilled workforce. Both the origins of the LGA, which stemmed from an initiative of the ostensibly conservative Center Party, and its progressive staff and policies compel a further revision of our thinking about the Prussian and German *Mittelstandspolitik.* They demonstrate both the surprising breadth of support for these policies across the political spectrum and their basic orientation to the market.

A motion by the Center Party's Karl Trimborn gave the initial impulse for setting up the Industrial Office. In the Prussian Lower House in 1902, he proposed the "systematic encouragement of small business by a central state organ."[55] Trimborn's purpose was neither politically reactionary nor merely rhetorical. Rather, he hoped to allow *Handwerk* and small industrial firms to compete with large-scale industry, to encourage them "to adapt as much as possible to the demands of modern business ways."[56] Pointing to the successes of such an office and the "new style of industrial policy" in Austria since 1892, Trimborn insisted that a central agency was needed to systematize the previously disparate programs and to develop new initiatives. Of special importance were various steps to encourage craftsmen to introduce machinery into their shops, the pooling of resources in cooperatives, and measures to improve vocational training. Although there were differences of opinion over details, Trimborn's proposal garnered an unusually wide spectrum of support. All of the parties in the parliament approved of the thrust of Trimborn's ideas, as did the Trade Minister, who promised to personally attend the commission meetings tasked with working out the particulars.

The Prussian State Industrial Office that emerged three years later under the aegis of the Trade Ministry aimed to promote a "generation that thanks to proper education is technically and theoretically, productively and commercially well

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developed. It must be capable, and place great confidence in itself and its abilities, and remain aware of the limits of its capacity to compete with large-scale producers."[57] As Trimborn had envisaged, the LGA brought focus and heightened attention to the Prussian state's efforts to improve the training of both young and established workers, including responsibility for continuation schools of various kinds, industrial exhibitions, vocational training—and eventually vocational counseling.

In its choice of personnel for the LGA, the Trade Ministry proved to have an eye for exceptionally capable men who combined energy, vision, and (for the most part) political sensibility.[58] Nor did it shy from controversy in pursuit of its goal of modernizing *Handwerk.* The LGA's staff included Hermann Muthesius, a prominent engineer-architect who had helped to found the *Werkbund.*[59] In an indication of the LGA's overall approach, Muthesius commented in an article on one branch of industry, that Germany needed "to have mass furniture of high quality and great simplicity, exactly as a well organized machine production could achieve."[60] When some craft organizations launched a loud campaign against Muthesius, accusing him of demeaning the "perfectly justified, healthy, conservative element in *Handwerk,*"[61] the LGA and the Trade Minister personally backed the reformer.[62] In the two decades between the LGA's founding in 1905 and the crucial steps in the mid 1920s to create a nationwide vocational training system, the Prussian office would play a decisive role. Even as ministers, Reichstag coalitions, and regimes changed, the men of the LGA—capable, committed to promoting a high-skills workforce, and with an esprit de corps—provided essential continuity.[63] Their expertise, as well as that of other non-political, mid-level officials, often "far exceeded that of ministers and deputy ministers," granting them "an extraordinarily strong influence."[64]

Despite *Handwerk*'s centrality in the origins of the LGA, the new office and the Trade Ministry concerned themselves with worker training in the broadest terms. When disputes over training arose in the following years between handicrafts and industry, the Trade Ministry intervened repeatedly, coaxing the two sides to work together.[65]

By the second half of the decade, pressure was growing for more decisive steps in Prussia's policy toward young workers. In 1906, the Trade Ministry was concerned enough about the supply and movement of skilled workers between *Handwerk* and industry to conduct a sample survey of skilled workers in industry.[66] The following year's comprehensive occupational survey, the first since 1895, revealed the dramatic changes Germany's rapid industrialization was causing in the workforce, especially the rising numbers of unskilled and female workers.[67] The percentage of skilled *Facharbeiter* had declined from 65 to 58 percent.[68] At the same time, the highest levels of Prussian government were taking a greater interest in the political implications of the "youth question." Alarmed by the SPD's increasing inroads among the young, but rejecting repressive measures, Prussian Minister President Bülow and Interior Minister Bethman-Hollweg called on their cabinet colleagues in late 1907 to develop a "positive" youth cultivation policy.[69]

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How, precisely, to achieve this general aim became the object of bitter debate within the Prussian government over the following three years. On the one side, conservatives in the Culture, Interior, and War Ministries wanted to imbue the young with patriotism and religious values, inoculating them against the allures of socialism. To this end, they proposed making continuation schools mandatory and shifting their focus from practical training to political and moral indoctrination. Opposing this group were the Ministers of Trade and Agriculture. While they agreed that socialism must be combated, they insisted that the best way to do this was indirectly, by giving young people a stake in society. The schools' emphasis should be on "education for proficiency, for pleasure in productive work, and for sympathy for the importance of our … polity, the traditions and institutions of which give every citizen a secure existence and the opportunity freely to exercise his creative abilities."[70] The values learned by training for skilled work—"industry, care, conscientiousness, perseverance, attention to detail, honesty, patience self-discipline, devotion to a clear goal standing outside ourselves"[71]—would also constitute a form, indeed the best form, of "citizenship education," Trade Minister Reinhold Sydow argued.[72] By encouraging individual economic development, one would strengthen social stability. Moreover, economic success per se, and not political education, was the most important purpose of these schools. "[O]ur commerce, our artisanate, and our industry" all depended on the practical training the continuation schools provided.[73]

This clash within the Prussian government prompted the Trade Ministry to become even more active in advancing its own vision of political order and economic progress. Partly in response to the conservatives' charge that the continuation schools were not reaching enough young people, the Trade Ministry in 1907 proposed a bill compelling all municipalities with more than 10,000 inhabitants to establish compulsory institutions. Although disagreement over conservatives' demands that these schools include more religious instruction ultimately scuttled the bill in 1911, the Trade Ministry continued with its piecemeal efforts to extend vocational schooling.[74] It also played a catalytic role in industry's first steps to organize its own vocational training, as we will see below.

The Trade Ministry's encouragement of a high-skills workforce, as reflected in such measures as the creation of certification procedures, the establishment of an energetic State Industrial Office, and the cooperation with industry, also extended to vocational counseling. Since the turn of the century, the grassroots labor exchange movement and social reformers had discussed influencing young people's choice of work and had even taken a few tentative steps in this direction. After 1900, several municipal, and subsequently state, labor offices had expanded their efforts to include apprenticeship placement, and at least one had begun to collect information from schools, employers, and unions for the sake of "organized vocational choice." Within the Prussian Association of Labor Exchanges, the Frankfurt social reformer Karl Flesch consistently prompted the offices to concern themselves with skilled workers, and hence vocational choice. Women's groups also had set up offices to counsel girls on future vocations.

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By 1910, the Prussian Trade Ministry began to lend official encouragement to such activities. In a major programmatic article, the high-ranking official Alfred Kühne made the case for planned vocational counseling and placement. The proper choice of a vocation had important consequences for the individual—for his "joy in work and fortune in life"—but even more so it had "great macroeconomic significance."[75] Above all, the choice separated the unskilled and the skilled. Of the former—who composed 31 percent of the boys between fourteen and eighteen years old in industry and 44 percent in commerce, and 52 percent and 48 percent respectively, of girls of the same age—there were "many, far more than one would wish for a healthy national education." The unskilled faced the greatest risks: they lacked the "salutary effects of a regular vocational education"; they spent their earnings on morally dubious entertainments such as "alcohol, dancing, cinema, smutty literature, and worse"; all too easily, they could find themselves on a slippery slope downward and end up in reform school. And it was not only the unskilled who suffered from a lack of proper vocational counseling. Those who overestimated the availability or attractiveness of office work, and those who were misled by the overly pessimistic prognoses for *Handwerk*, could also benefit from informed choice. Such matters, Kühne continued, had a profound impact on the country's economic success: "The competitiveness, the future of Germany's industry depends on superior quality, and this in turn presupposes a well-trained workforce." This programmatic article suggested the close linkage, in the eyes of the Trade Ministry, between the challenges of domestic social order and national economic success.

Germany therefore must not let the number of unskilled workers increase even more, Kühne continued. To this end, the Trade Ministry welcomed contributions from several sources. Parents must assume greater responsibility; school doctors and teachers had a role to play, as did, for the unskilled, the continuation schools. Yet none of these resources promised the comprehensive and concentrated guidance that the Trade Ministry representative advocated. For that, "an office is necessary that is capable of judging the prospects of particular vocations and the labor market and that if possible can also place them in apprenticeships and work." In fact, such offices existed already, in the form of the municipal labor offices organized on a parity basis in such southern German cities as Munich and Strassburg. In the Bavarian capital, for example, the labor office and teachers consulted; while the teachers invited the children and parents to the school to talk about the importance of the matter, the labor office sent families surveys to be filled out by them and the teachers. The city's doctors would determine whether the children were suitable for various skilled professions. Meanwhile, the labor office would collect lists of open apprenticeships and have the craft guild vouch for the trustworthiness of the firms. This kind of coordination by the southern German labor exchanges, Kühne suggested, was "immediately exemplary."

The Prussian official's endorsement of a centrally organized vocational counseling and placement office anticipated the institutional framework that would

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become reality after World War I. His concerns also adumbrated a telling shift in thinking among advocates of a skilled workforce, a partial blending of the "organizational" and individual improvement strands. Namely, it was no accident that while justifying the program primarily in terms of Germany's economic vitality, Kühne emphasized the necessarily comprehensive nature of vocational counseling and steering. National goals, it seemed, justified more compulsory measures. It would be a short step to the Trade Ministry's advocacy toward the end of the war of legally binding "complete inclusion" for a national system of vocational counseling and training.

In 1910, however, attention still focused on local offices. Furthermore, the appreciation of public labor exchanges' importance did not prevent the Trade Ministry from also pursuing other avenues toward its goal of a high-skills workforce. Thus, later in the same year, Kühne strongly encouraged the industrialists organized in the German Committee on Technical Education (see below) to systematize vocational choice, as *Handwerk* was beginning to do, but he did not specify the means.[76] By the eve of the Great War, however, advocates of publicly organized vocational counseling had taken the first, tentative steps to coordinate and mobilize support for their plans. In 1913, the quasi-public, reform-minded Central Association for the People's Welfare founded a German Committee on Vocational Counseling, which brought together many important advocates of public vocational counseling, including industrialists, craftsmen, social and pedagogical reformers, as well as a representative of the Prussian Trade Ministry. Though the committee's work would be cut short by the outbreak of the war, the chairman, Johannes Altenrath, who was also director of the Central Association, delineated its consensus, thereby anticipating later developments:

> Today one strives for a planned organization of vocational counseling and placement primarily in the interest of the youths. They should be placed whenever possible in beginning positions and apprenticeships that accord with their abilities and inclinations and in which they can obtain an education and vocational training matching their age and natures. On the other side, however, general economic considerations are also decisive. The various branches of industry should receive an appropriate selection of new workers necessary for the increase of their productivity.[77]

Rationalization versus Quality Production: The Ambiguous Future of German Industry

The success of these government programs to keep the number of unskilled workers as low as possible and create a broad class of skilled workers depended on the cooperation (or at least tolerance) of important social actors, including *Handwerk,* the unions, and industry. The crafts movement had, of course, long clamored for public support. The unions, especially the socialist Free Trade Union, with their eye on political matters such as strike laws and collective bargaining

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arrangements, tended to overlook vocational training until the Weimar period.[78] Above all, if Germany's rapidly growing industry did not commit itself to the skilled *Facharbeiter,* no amount of public support would matter in the end. In the decades before the outbreak of the Great War, however, considerable ambivalence about its future production methods and kind of workforce characterized German industry. Rapidly evolving labor demographics, mounting domestic political and international economic challenges, and—crucially—the availability of alternative models of industrial production undercut consensus. In regard to their workforce and production methods, German industrialists were, to use Charles Sabel's and Jonathan Zeitlin's distinction,[79] not merely maximizing, but also strategizing actors—they did not simply accept the institutional environment as it was, but tried to shape it as well.

The source and nature of the industrial workforce had not been a particularly salient problem during the first decades of the Kaiserreich. In matters of vocational training—as in all economic areas—the liberal 1869/1871 Trade Regulations established the legal framework for all subsequent developments in the Kaiserreich (and, indeed, well beyond 1918). The regulations had abolished the guilds, which had previously controlled vocational training and certification, and left these matters to the free play of market forces. In the following decades, both the lack of an overarching legal framework for vocational training and the piecemeal attempts to address perceived detrimental effects of the same shaped the course of German employers' policies on worker training.

Despite the abolition of guilds and all regulations pertaining to apprenticeships, craft masters continued to train the vast bulk of the German economy's skilled workers—including those required by the rapidly expanding industrial sector. Industrial firms, after all, had themselves often grown from handicrafts roots and since then had continued to rely on the training provided in smaller workshops; industrial production techniques and those techniques craftsmen could teach still largely overlapped, at least at first. Worker protection laws also contributed to industry's reluctance to train its own workers: an 1878 statute limiting the working hours of youths meant that large-scale manufacturers, in whose factories instruction was more clearly separated from production, would have to pay more dearly for the lost productivity.[80] Another, perhaps more serious, reason militating against widespread worker training by industrial firms was the possibility that other firms would poach skilled workers, thus depriving the original firm of its investment. *Handwerk* did not face the problem of lost investments in nearly the same degree, as handicrafts firms could integrate instruction and production to a far greater extent than could industry, and as their small size and still relatively intimate setting allowed the masters to bind at least a minimum number of apprentices to them. As the few studies of an industrial firm's production/labor market strategies in this period have shown, companies cared a great deal about preserving a *stable* core of skilled workers[81]—a fact which made them even more leery of losing workers they themselves had trained.

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In the 1870s, when an ostensible "apprenticeship crisis" occupied the educated public,[82] at least some manufacturers took part in discussions about revamping training.[83] The discussion of the crisis focused not only on the complaints of *Handwerk* masters, who lamented their loss of authority over their trainees since 1869/71, but more generally on recent and alarming signs that the quality of German products had fallen behind that of other nations.[84] In the following decade, several of the largest industrial companies established their own worker training facilities and programs, when the growing divergence between craft and industrial production methods made the transition between the two increasingly difficult.[85] Still, firms such as Krupp, Bosch, and Siemens were exceptional in starting their own training programs before the 1890s.

As with the struggles over control of the labor market and the Prussian program to develop a high-skills workforce, the return of rapid and sustained economic growth in the mid 1890s marked a turning point here as well. Sporadic and desultory interest in the kinds of workers industry needed gave way to more sustained—though by no means harmonious—attention. The often explosive growth of new industries and firms—Siemens' workforce alone increased by 400 percent in the decade after 1895[86]—raised questions about how the new workers were to be integrated into increasingly massive production facilities, how they were to be trained and to work, and who would supervise them. If previously hiring the sons of employees allowed firms to count on a disciplined core workforce,[87] the influx of immigrants from Germany's rural reservoirs made this increasingly difficult. The sheer growth of German industry began to turn a surplus of labor into a deficit. In the two and a half decades before World War I, unemployment averaged 2.6 percent.[88] Even with the infusion of cheap, largely Polish foreign labor, employers could no longer count on a virtually unlimited pool of cheap labor. Economic good times and the resulting low levels of unemployment contributed to a much more rapid turnover of the workforce, especially among the unskilled, but also among trained workers looking to move up.[89] Such poaching between employers significantly raised the costs of worker training. The increased contacts between workers in different firms and regions could also add to employers' political headaches, by paving the way for unionization.[90] In light of both the economic problem of screening and retaining capable workers and the political one of keeping unions out, employers at their inaugural job placement conference in 1901 identified a "well-trained, reliable, and capable labor force that is as little subject to fluctuation as possible, as an absolute necessity of an industrial economy."[91]

The pressure to make better use of the workforce came not only from these domestic changes, but also from an increasingly competitive international environment. If German manufacturers had in the meantime restored their reputation damaged by the devastating critiques of their shoddy work made at the 1876 World's Fair, they now faced an array of competitors, especially from the US, in precisely the key areas of the "second industrial revolution": electronics,

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chemicals, and machine tools. In the 1890s and 1900s, the pressure from foreign competitors became considerably fiercer. In particular, US firms such as General Electric and Westinghouse in the electrical industry, DuPont in chemicals, and a host of smaller firms in machine tools began to threaten German companies' positions domestically and in world trade.[92] While the German electrical giants Siemens and AEG, for example, had dominated world sales into the 1890s without serious challenge, by 1913, US companies nearly had matched their output.[93] American innovations in mass production threatened German quality production with cheap prices (and sufficient quality). It also appeared to offer some German manufacturers an attractive model of their own future.

In the two decades before World War I, no consensus response to these challenges emerged. The 1897 reconstitution of craft guilds, whose certification procedures would provide a general model after World War I for solving the incentives problem of worker training, in the short-term mobilized parts of manufacturing industry, but it also divided it. The legal privileging of *Handwerk* led immediately to demands for equal treatment of the growing number of workers trained by industry. However, the issue revealed divisions among industrialists about how equal access should be guaranteed, and even whether it mattered. As representatives of the General Association of Metal Producers and of the Association of German Machine-Builders reported with regret in March 1914, "currently the views within industry on the usefulness and organizational form of exams [equivalent to those in *Handwerk*] are still far apart."[94]

It was no accident that machine-producing and metal-working firms stood at the forefront of efforts to institutionalize industrial training of skilled workers. By their very nature, these firms were closer to crafts: more dependent on individualized work and less capable of standardized mass production. After 1900, the number of engineering companies maintaining their own training workshops and company schools for apprentices, though still only a small minority, also grew rapidly.[95] By 1907, while *Handwerk* still trained the bulk of all apprentices, industry's share had already risen to a third.[96]

More important in the long-term than these steps by individual companies was the effort to create common standards for worker training, even in the absence of a legal framework. Under the prodding of the Prussian Trade Ministry, the Association of German Engineers (VDI), the Machine-Builders Association, and others in 1908 established the *Deutsche Auschuss für technisches Schulwesen* (DATSCH)—the German Committee on Technical Education.[97] Though founded for the purpose of establishing and disseminating uniform norms for engineers' education, DATSCH's purview quickly expanded to include the entire vocational training system. Anton Rieppel and Fritz Frölich, directors of the large engineering firm MAN and longtime advocates of industry's vocational training, were among the most forceful promoters of a broader mandate.[98] By the fall of 1909, DATSCH had put apprenticeship training on its agenda.[99] One of its main goals was to agree on clear vocational descriptions and uniform training methods. In this program to create uniform standards for skilled workers lay the origins

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of the German vocational system as it took shape after 1925. The very first of DATSCH's "guiding principles" from 1912 expressed the nature and significance of what the Association now perceived as its main task, as well its motivation:

> The mechanical industry is compelled to an ever greater degree, especially as a result of competition with foreign [industry], to perform high-value work. This requires constant progress in the education and training of young skilled workers. For this reason, it is one of the most important tasks of industry to ensure good training of a sufficient number of apprentices and to secure its due influence over the shaping of apprentice training. An orderly apprentice training also promotes the education of the worker as national citizen.[100]

As pioneering as DATSCH's efforts to coordinate industry's own training program would later prove to be, however, for the time being they faced serious obstacles. Not only did DATSCH's recommendations lack legal standing, but outside of the machine-building industry, the issue of worker training continued to find little resonance. A survey conducted for the industrial umbrella organization CVDI in 1913 produced:

> very meager results … Industry generally, except for the engineering branch, where the question has already been thoroughly discussed, is still cool to the whole thing and is reluctant to commit itself by expressing a [public] opinion before having come to its own judgment … The majority of respondents are of the view that there are enough apprentices in industry, and that these apprentices are well trained.[101]

DATSCH's program to promote and systematize industrial training had to overcome more than mere apathy, however. A rival view of Germany's industrial future challenged it, a vision of rationalization drawing largely on US technology and principles. During the nineteenth century, US ingenuity and conditions—a vast middle class with unusually homogeneous consumer tastes, seemingly unlimited natural resources, a scarce supply of skilled labor, and the influx of millions of unskilled immigrants—helped to spawn an "American system" of mass production.[102] Quickly trained workers used single-purpose machines to produce interchangeable parts that were then combined into cheap, standardized goods for a mass market. In the other rapidly industrializing power—Germany—manufacturers facing similar challenges of shortages of skilled workers and an abundance of the unskilled began employing US special machines in incipient mass consumer industries such as sewing machines and bicycles.[103] Even more resolutely, however, they embraced the spirit of the US innovations. A comment by the head of Siemens reflected this euphoria as early as the 1870s, even in an industry that had always had a high proportion of skilled workers:

> We have … assiduously been attempting since a year to make everything, as the Americans do, with special machines … It has worked out brilliantly … Now we are all convinced that our future salvation lies in the application of the American work-methods and that we have to change our entire business practices accordingly.[104]

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In practice, the vision of introducing "American methods" in all spheres proved to be anything but easy to implement. Some of the reasons included: the relatively low number, and the specialized wishes, of the customers—especially for large electrical motors and machine tools; the high cost of the new machines; the rising cost of human labor, especially after the turn of the century; resistance by skilled craftsmen; and difficulties in establishing industry-wide norms.[105]

These problems of implementation hardly dimmed the tantalizing promise embodied in the American methods, especially after further technical innovations and intellectual-programmatic systematizing after 1900. US engineer Frederick Winslow Taylor's invention of methods for more precisely cutting steel significantly expanded the possibilities for using interchangeable parts in even complex products. US companies also introduced "norming offices" to coordinate centrally the division of labor. The intellectual synthesis and apotheosis of the drive for efficiency appeared in the decade before World War I with Taylor's advocacy of "scientific management." His books *Shop Management* (1900) and *The Principles of Scientific Management*[106] (1911) presented an enticing vision of a comprehensively rationalized system of production.[107] A central bureau, after having determined the "one best way" to carry out work processes, should distribute raw materials, tools, and workers in the most efficient manner.

Enterprising German engineers, such as Georg Schlesinger of the Ludwig Löwe machine-tool company, became the prophets of Taylor's gospel of efficiency through centralized, systematic control. Schlesinger's journal *Workshop Technology (Werkstattstechnik),* launched in 1907—a year before the founding of DATSCH—became a crucial medium for spreading new ideas about technology, norming, and factory organization.[108] In the years before World War I, Schlesinger and like-minded engineers enthusiastically promoted Taylor's ideas about "scientific management," even if little as yet was implemented.[109]

German industrialists' and engineers' growing enthusiasm for "scientific management" could lead easily to a denigration of the "human factor" in production. Their appreciation of the material and organizational components of company success—"on the cutting edge of steel," Schlesinger had aphorized in 1911, "sit the dividends"[110]—could induce the engineers to view the worker as a secondary or even tertiary element, one which had to be fitted to the physical capital as best as possible—and even himself somehow needed to be selected or shaped to fit a norm.[111]

Yet the two aspects—scientific management and investment in the workers—were not necessarily mutually exclusive. In a seeming paradox, Schlesinger's company, Ludwig Löwe, was also one of the pioneers of industrial vocational training, having been one of the founding members of DATSCH. Schlesinger's journal, *Workshop Technology,* sheds light on this apparent contradiction. In his introduction to the new journal, Schlesinger paid tribute to the intermeshing of all of the elements, including workers, which could contribute to "the best, fastest, and cheapest" work:

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> The highest degree of work capacity is reached when people who are capable, enjoying their labor, and satisfied work in purposefully designed rooms at the best machines with superior tools and equipment; in rooms that correspond to the kind of work and the work process of a particular object, that have the appropriate cranes inside and sufficient connections between them and that guarantee company officials easy supervision.[112]

In the general terms of Schlesinger's introduction, then, there was no apparent conflict between the claims of efficient central management and a skilled workforce. Yet the content of *Workshop Technology* revealed a far different picture. Despite Schlesinger's promise to provide "a complete picture of the workshops in their essential parts, as we described them above," the engineers who wrote the vast bulk of the contributions focused almost exclusively on technical and organizational—that is, on Taylorist—questions.[113] In this emphasis, despite the initial promise of balance, was reflected the strong temptation to bring all matters under centralized control. Schlesinger and the Ludwig Löwe Company, pioneers of both worker training and "scientific management," personified German industry's ambivalence in the early twentieth century about its future production methods and workforce needs. As Gary Herrigel puts it, in the decades before the war, "there was tremendous ambiguity concerning the kind of production strategy producers seemed to be pursuing, even within individual firms."[114]

The incipient program to create a high-skilled German workforce did not achieve the clear resolution that the efforts to organize the labor market did with the 1910 Job Placement law. Before the war, the pressures to reach a solution in regard to worker training were weaker than they were in the realm of public order, where the stakes were so high. The threat of foreign economic competition still seemed less salient, especially during economic boom times, than that coming from strikes, lockouts, and agricultural interest groups' protests.[115] A skilled workforce's contribution to domestic stability, as well as to economic vitality, would manifest itself only over years, if not decades. On the other hand, the restriction of private and partisan job placement to the benefit of public offices could produce immediate effects, as we saw in the previous chapter.

Additionally, within the Prussian administration there was not yet a consensus about the purpose of youth education. The mistrust between industry and handicrafts permitted only a partial, if promising, resolution of worker training questions in the form of the 1897 *Handwerk* law. The Prussian Trade Ministry encouraged training in various ways, but these efforts did not yet amount to national policy. Internally, too, industry was divided between those firms, especially in the machine-building and metal-working industries, which had the greatest interest in fostering a large group of skilled workers, and other manufacturers, who were indifferent or opposed. For many in the latter category, the alluring vision of US-style rationalization kept firms from committing to worker training.

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Notes

1. Steve Hochstadt, *Mobility and Modernity: Migration in Germany, 1820–1989* (Ann Arbor, 1999), 55–116; Uhlig, *Arbeit–amtlich,* 24–27.
2. Zentralstelle für Volkswohlfahrt, *Das Lehrlingswesen und die Berufserziehung des gewerblichen Nachwuchses: Vorbericht und Verhandlungen der 5. Konferenz der Zentralstelle für Volkswohlfahrt am 19. und 20 Juni 1911 in Elberfeld* (Berlin, 1912), 311.
3. Meskill, *"Improving Our Civic Conditions";* Palmowski, *Urban Liberalism;* Roth, *Stadt und Bürgertum;* Hans Kilian Weitensteiner, *Karl Flesch—Kommunale Sozialpolitik in Frankfurt am Main* (Frankfurt, 1976).
4. Roth, *Stadt und Bürgertum,* 381–83.
5. Ibid., 565, 570, for the nature and relatively small scale of the city's industrial enterprises.
6. Ibid., 561–566. As Roth points out, the importance of electrification for preserving *Handwerk* was hardly limited to Frankfurt. By 1913, 200,000 electrical motors had been sold to craftsmen throughout Germany.
7. Ibid., 637, 611.
8. Zentralstelle, *Das Lehrlingswesen,* 496.
9. Stadtarchiv Frankfurt, Bericht des Magistrats für das Jahr 1891/2, 265.
10. *Die Kleine Presse,* 17 April 1907, 3.
11. Karl Flesch, *Beiträge zur Kenntnis des Armenwesens in Frankfurt am Main* (Frankfurt, 1890), 77.
12. See the documents in GStA PK, I. HA, Rep. 120 Ministerium für Handel und Gewerbe, BB VII, 1, Adhib 42, Bd 1.
13. Hettling, *Politische Bürgerlichkeit.*
14. Ibid., 221.
15. Ibid., 222–23. See also pp. 144–45, where Hettling discusses the tendency of Left Liberals across Germany, not just in Breslau, to orient their policy vis-à-vis the working class toward the goal of creating economically independent citizens.
16. Such laws were passed in Saxony, Hessen, and Baden—states in which small-scale enterprises had always been the predominant form of industry and in which similar schools had existed since the early nineteenth century. Linton, *"Who Has the Youth,"* 74.
17. Hans Heinrich Borchardt, ed., *50 Jahre Preussisches Ministerium für Handel und Gewerbe 1879–1929* (Berlin, 1929), 55.
18. Zentralstelle, *Das Lehrlingswesen,* 311.
19. Ibid., 308.
20. Ibid., 313.
21. Ibid., 310.
22. Sylvia Rahn, *Die Karrierisierung des weiblichen Lebenslaufs: Eine historische Rekonstruktion der Entstehung der Berufswahl im weiblichen Lebenslauf Ende des 19. und zu Beginn des 20. Jahrhunderts* (Frankfurt, 2001), 123–24.
23. Uhlig, *Arbeit–amtlich,* 199.
24. In Mainz, for example, in 1908. Brüchert-Schunk, *Städtische Sozialpolitik,* 122.
25. Zentralstelle, *Das Lehrlingswesen,* 333–34.
26. Ibid., 477–78.
27. See the discussion in ibid., 494–95.
28. Ibid., 505.
29. Uhlig, *Arbeit–amtlich,* 197–98.
30. Ibid., 198.
31. Hübinger, *Kulturprotestantismus;* Hettling, *Politische Bürgerlichkeit.*
32. Stegmann and Langhorst, "Geschichte der sozialen Ideen," 650.
33. Joan Campbell, *The German Werkbund: The Politics of Reform in the Applied Arts* (Princeton, 1978), ch. 1.

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34. See chapter 1.
35. Recent scholarship has even challenged the notion that Germany's tariff policies were particularly or unusually protectionist. See Blackbourn, *History of Germany,* 239–41. Earlier doubts were raised in Hentschel, *Wirtschaft und Wirtschaftspolitik.*
36. Geoff Eley, "Sammlungspolitik, Social Imperialism and the Navy Law of 1898," in Eley, *From Unification to Nazism: Reinterpreting the German Past* (Boston, 1986), 110–53.
37. Gary Bonham, *Ideology and Interests in the German State* (New York, 1991). On the Prussian Trade Ministry, in particular, see Helga Berndt, "Die höheren Beamten des Ministeriums für Handel und Gewerbe in Preussen 1871 bis 1932," in *Jahrbuch für Wirtschaftsgeschichte,* 1981/II.
38. Blackbourn, *History of Germany,* 261, 263.
39. Hal E. Hansen, *Caps and Gowns: Historical Reflections on the Institutions that Shaped Learning for and at Work in Germany and the United States, 1800–1945* (Ph.D. diss., University of Wisconsin, 1997); Thelen, *How Institutions*; Körzel, *Berufsbildung;* Edward Ross Dickinson, "Citizenship, Vocational Training, and Reaction: Continuation Schooling and the Prussian 'Youth Cultivation' Decree of 1911," in *European History Quarterly,* vol. 29 (1), 1999: 109–47; Herrigel, *Industrial Constructions,* 114.
40. For an introduction to the theme of the "varieties of capitalism," see Peter A. Hall and David Soskice, eds., *Varieties of Capitalism: the Institutional Foundations of Comparative Advantage* (New York, 2001).
41. See Körzel, *Berufsbildung,* for a welcome corrective to earlier, tendentious accounts, which explained Prussian (and other states') policies toward vocational matters exclusively or at least overwhelmingly in terms of the Kaiserreich's political battles or in terms of "social control."
42. See Berlepsch, *"Neuer Kurs."*
43. Körzel, *Berufsbildung;* See Borchardt, *50 Jahre Preussisches Ministerium,* 35.
44. Though Derek Linton, *"Who Has the Youth,"* 75, acknowledges the transfer, he continues to characterize these schools as largely instruments of social control.
45. See the figures in GStA PK, I. HA, Rep 151 (Finanz), I C, Nr. 9368, 59-60. Funding increased in the following increments: 307,000 marks (1880), 925,000 (1885), 2.3 million (1890), 2.7 million (1895), 5.4 million (1900), 7.4 million (1905).
46. Linton, *"Who Has the Youth,"* 77.
47. Ibid., 82–83, 85; Borchardt, *50 Jahre Preussisches,* 71.
48. Berlepsch, *"Neuer Kurs,"* 249.
49. Trade Minister von Berlepsch had expressed concern that Germany did not have enough skilled workers, hence endangering the country's exports. Under his successors, Brefeld and especially Moeller (1896–1905), the Trade Ministry sponsored numerous fact-finding missions to European countries and the United States. Berlepsch, *"Neuer Kurs,"* 249; Borchardt, *50 Jahre Preussisches,* 55. See Repp, *Reformers,* 53–57, on the simultaneous turn among Protestant figures, such as Max Weber and Friedrich Naumann, from religious to national inspiration for their social concerns.
50. See, for example, Hans-Ulrich Wehler, *The German Empire, 1871–1918* (Dover, 1985); Blackbourn, *A History of Germany,* 348.
51. Hansen, *Caps and Gowns.*
52. For this reassessment of the purpose and the impact of the 1897 law, see Hansen, *Caps and Gowns,* 313–94.
53. Gerhard Adelmann, "Die berufliche Ausbildung und Weiterbildung in der deutschen Wirtschaft 1871–1918," in *Berufliche Aus- und Weiterbildung in der deutschen Wirtschaft seit dem 19. Jahrhundert,* ed. Hans Pohl (Wiesbaden, 1979), 9–52, 19.
54. Hansen, *Caps and Gowns,* 363–64.
55. *Stenographische Berichte über die Verhandlungen des Preuss. Hauses der Abgeordneten, 19. Legislaturperiode, IV. Session, 1902,* vol. 1, column 1270 (5 February 1902).
56. Ibid., column 1281.
57. Landesgewerbeamt, *Verwaltungsbericht 1905* (Berlin, 1906), forward (unpaginated).

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58. In regard to vocational training and counseling, the most important figures were Alfred Kühne and, after 1918, Ernst Schindler. Only in his mid 30s by the end of the war, Schindler quickly became the most influential civil servant negotiating the regulation of both vocational training and counseling. He expressed such command of the issues and personal integrity that he earned the respect of both handicrafts and the socialist unions, certainly a rare feat. His origins in the city of Breslau, whose dominant Left Liberal *Bürger* continued to place economic independence at the core of their political outlook, may have played a role in his views.
59. Campbell, *The German Werkbund.*
60. See the article in the booklet *Dresdner Hausgerät,* in GStA PK, I. HA, Rep. 120 Ministerium für Handel und Gewerbe, E I gen, Nr 27, Bh. 1, vol. 1 (Beamte des LGA), 171ff.
61. See the complaint by the *Fachverband für die wirtschaftlichen Interessen des Kunstgewerbes* to the Trade Ministry, on 28 April 1907, in ibid., 61. The "Muthesius case" even drew the attention of the Prussian House of Representatives.
62. See the exchanges in ibid.
63. On the continuity of policy in Weimar provided by long-serving ministers and high bureaucrats, see Richard J. Evans, *The Coming of the Third Reich* (New York, 2004), 85.
64. Berndt, "Die höheren Beamten," 110.
65. See the further Ministry directive from 14 July 1905 (referred to in BAB, 8099/18, 3 July 1913); also, see Ebert, *Zur Entstehung,* 199–200.
66. See the Ministry's directive from 15 March 1906 to select governors to conduct these surveys, in GStA PK, I. HA, Rep. 120 Ministerium für Handel und Gewerbe, BB VII, 3, Nr. 1a, 74.
67. In the intervening twelve years, the number of women working in industrial jobs had increased by 40 percent, from one and a half to more than two million. See the article "Die Berufswahl im Handel und Gewerbe," by Alfred Kühne of the Trade Ministry in the journal *Die Fortbildungsschule* from 26 May 1910, which reflects the great impression that this survey made.
68. Nipperdey, *Deutsche Geschichte,* vol. I: 296.
69. Dickinson, "Citizenship," 118.
70. Quoted in ibid., 119.
71. Ibid., 128.
72. Ibid., 130.
73. Ibid., 132.
74. For example, by subsidies to communities setting up such schools and by changes to the industrial code allowing authorities to compel local government to establish schools. Ibid., 120, 139–40.
75. Alfred Kühne, "Die Berufswahl im Handel und Gewerbe," in *Die Fortbildungsschule* (26 May 1910).
76. GStA PK, I. HA, Rep. 120 Ministerium für Handel und Gewerbe, E I gen, Nr. 20, Adhib 1, 126.
77. Körzel, *Berufsbildung,* 173–74.
78. In 1918, the unions admitted they had paid previously too little attention to vocational training. Ebert, *Zur Entstehung,* 262; for similar comments at the 1919 Nürnberg union conference, FES, ADGB NB 532, 30 June 1919.
79. Cited by Herrigel, *Industrial Constructions,* 25, who applies it to Germany at the turn of the century.
80. Adelmann, "Die berufliche Ausbildung," in Pohl, *Berufliche Aus- und Weiterbildung,* 19.
81. See Homburg, *Rationalisierung.* See also Heilwig Schomerus, *Die Arbeiter der Maschinenfabrik Esslingen: Forschungen zur Lage der Arbeiterschaft im 19. Jahrhundert* (Stuttgart, 1977), 76ff.
82. Adelmann, "Die berufliche Ausbildung," in Pohl, *Berufliche Aus- und Weiterbildung,* 11; Faust, *Arbeitsmarktpolitik,* 18.
83. See the contributions to the conference on this matter held in 1875 by the Verein für Sozialpolitik, Verein für Sozialpolitik, *Die Reform des Lehrlingswesens: Sechszehn Gutachten und Berichte* (Leipzig, 1875).

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84. See Herwig Blankertz, *Bildung im Zeitalter der grossen Industrie: Pädagogik, Schule und Berufsbildung im 19. Jahrhundert* (Hanover, 1969), 103–104, on the impact of the impressions gained by the Germans at the World Exposition in Philadelphia in 1876. The Berlin engineering professor Franz Reuleaux's pronouncement, that German products were "cheap and shoddy," became an oft-cited catchphrase.
85. Adelmann, "Die berufliche Ausbildung," in Pohl, *Berufliche Aus- und Weiterbildung,* 19.
86. Calculated according to the figures in Homburg, *Rationalisierung,* 710.
87. Heilwig Schomerus, *Die Arbeiter,* 163.
88. Faust, *Arbeitsmarktpolitik,* 24.
89. Ibid.; Schomerus, *Die Arbeiter,* 76; Crew, *Town in the Ruhr.*
90. Schomerus, *Die Arbeiter,* 77.
91. Quoted in Faust, *Arbeitsmarktpolitik,* 19.
92. On the competition in the electrical industry, see Homburg, *Rationalisierung,* 360–61; on the machine-tools industry, see Thomas von Freyberg, *Industrielle Rationalisierung in der Weimarer Republik, untersucht an Beispielen aus dem Maschinenbau und der Elektroindustrie* (Frankfurt, 1989), 35–54; on the chemical industry, see Peter Hayes, *Industry and Ideology: I.G. Farben in the Nazi Era* (Cambridge, 2001), 7, 9; for German industry generally, see Alfred D. Chandler, *Scale and Scope. The Dynamics of Industrial Capitalism* (Cambridge, 1996), 393–502.
93. Homburg, *Rationalisierung,* 360. In 1913, Germany produced 35 percent of the world's total electrical goods, the US, 29 percent.
94. BAB, 8099/18 (VDMA), 10 March 1914, 51.
95. Linton, "Who Has the Youth," 35. In 1912, for example, five of 18 major machine-tool firms with large numbers of apprentices had their own training workshops.
96. Adelmann, "Die berufliche Ausbildung," in Pohl, *Berufliche Aus- und Weiterbildung,* 19.
97. For the Trade Ministry's role in the founding of DATSCH, see the LGA's letter to the Ministry on the shortcomings of the VDI from 3 April 1908; the letter from the Trade Ministry to the VDI on 6 May 1908 along the same lines, in GStA PK, I. HA, Rep. 120 Ministerium für Handel und Gewerbe, E I gen, Nr. 20, Adhib 1, 3–9. Also, the VDI's letter from 17 November 1908 to the Trade Ministry, saying that it had decided "in accord with the suggestions of the Trade Ministry" to invite representatives of the various groups to a meeting on 3 December 1909 to consider industry's role in vocational training, in ibid., 10. On the Trade Ministry's ongoing interest in DATSCH as well as the institutional and financial support it lent, see the multiple updates from DATSCH to the Trade Ministry and requests for assistance, in ibid.
98. See the transcript of DATSCH's very first meeting, on 3 December 1908, at which Rieppel repeatedly pressed industry to do more vocational training, a call that found the enthusiastic support of the Trade Ministry representative. GStA PK, I. HA, Rep. 120 Ministerium für Handel und Gewerbe, E I gen, Nr. 20, Adhib 1, 32-35. At a meeting in February 1909, Frölich advocated expanding DATSCH's purview to vocational training. Ibid., 39–40. On Frölich's dynamic leadership, see Gerald D. Feldman, *Iron and Steel in the German Inflation, 1916–1923* (Princeton, 1977), 47.
99. GStA PK, I. HA, Rep. 120 Ministerium für Handel und Gewerbe, E I gen, Nr. 20, Adhib 1, 97.
100. Adelmann, "Die berufliche Ausbildung," in Pohl, *Berufliche Aus- und Weiterbildung,* 30.
101. See the pamphlet put out by the CVDI in 1914, containing the text of a talk by Otto Brandt, *Fabrik und Handwerk,* in which he discusses this survey, in BAB, 8099/18 (VDMA).
102. David A. Hounshell, *From the American System to Mass Production, 1800–1932: the development of manufacturing technology in the United States* (Baltimore, 1985).
103. Ebert, *Zur Entstehung,* 153.
104. Conrad Matchoss, *Werner Siemens,* 354, cited in Jürgen Kocka, *Unternehmensverwaltung und Angestelltenschaft am Beispiel Siemens, 1847–1914: Zum Verhältnis von Kapitalismus und Bürokratie in der deutschen Industrialisierung* (Stuttgart, 1969), 126.

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105. See Homburg, *Rationalisierung;* von Freyberg, *Industrielle Rationaliserung.* Ebert, *Zur Entstehung,* 137–59, acknowledges these difficulties without explaining them.
106. Frederick Winslow Taylor, *The Principles of Scientific Management* (New York, 1911). The book was translated into German in 1913.
107. Hugh G.J. Aitken, *Scientific Management in Action: Taylorism at Watertown Arsenal, 1908–1915* (Princeton, 1985).
108. Günter Spur, *Produktionstechnik im Wandel* (München, 1979), 11–23.
109. Ibid., 184–90; Heidrun Homburg, "Anfänge," in *Geschichte und Gesellschaft;* Gabriele Wohlauf, "Moderne Zeiten—Normierung von Mensch und Machine," in *Untersuchungen zur Geschichte der Psychologie und der Psychotechnik,* ed. Horst Gundlach (München, 1996), 147–65.
110. Spur, *Produktionstechnik,* 17.
111. Wohlauf, "Moderne Zeiten," 153. Later, in the second half of the 1920s, numerous industrialists would criticize their own, earlier views of the worker for precisely these reasons. See chapter 4.
112. "Zur Einführung," *Werkstattstechnik,* vol. 1, nr. 1, January 1907: 2.
113. Over time, the emphasis shifted ever more in the direction of engineering and technical questions. By 1914, nearly every issue of *Werkstattstechnik* had an article on Taylor, but almost never had any on worker training.
114. Herrigel, *Industrial Constructions,* 88.
115. On German industry's confidence after the end of the economic turbulence and beginning of boom years in the 1890s, see Feldman, *Army,* 14–15.

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