

TOWARD THE GERMAN SKILLS MACHINE

Establishing Vocational Counseling and Training



*I*n December 1921, at just the second meeting of representatives from all of the state and provincial vocational offices, Paul Knoff, the influential head of the Brandenburg office, spared no words in his critique of the state of vocational counseling: “The numbers of extant vocational counseling and apprenticeship placement centers leave the impression that vocational counseling has already accomplished much. If one looks more closely, however, one notices that in many cases one can hardly speak of real vocational counseling.”¹ Observers of vocational training saw things almost as dimly: disagreements between labor and industry were blocking progress on a national law on training; DATSCH, the manufacturers’ organization that before the war had pioneered coordination of training, was moribund; and only isolated companies showed much interest in training.²

In the early postwar years, as we saw in the previous chapter, much energy had gone into the legal, institutional, and financial establishment of the Labor Administration. As the officials of the Prussian Trade Ministry had learned in the bitter struggles over the Labor Exchange Law, these efforts did not lead necessarily even to the merely formal creation of vocational counseling offices on a national scale. Furthermore, if the movement to steer young people into skilled work was to succeed, the Labor Administration’s local offices had to create the personnel and infrastructure of a whole new bureaucracy practically *de novo*. They additionally had to establish themselves *vis-à-vis* the various constituencies shaping the working world. In the absence of a legal mandate, they needed to win the trust of the public, the schools, current and future workers, and, most importantly, the local employers. Once the general legal framework had been established in the early

1920s, much of the work of establishing a national system of vocational counseling would involve gaining ground vis-à-vis these local interests. But interests were not all that was required to gain ground. Industrialists' *thinking* about production and the role of their workers in it remained, in the early 1920s, the major impediment to creating a high skills workforce. Once their ideas changed in the middle of the decade, the German skills machine began to take off.

A New Bureaucracy and Its Constituencies

Particularly between 1919 and 1921, and again after 1924, vocational counseling briskly expanded. The *Reichsarbeitsblatt* reported with satisfaction that in 1924/25, the number of vocational counseling offices and of advice-seekers had "increased considerably." While in the first two years after implementation of the Labor Exchange Law, 1922/23 and 1923/24, the number of offices had remained constant at roughly 380, in the third year it jumped more than 30 percent to a total of 518, though the Agency acknowledged that some of the increase could be due simply to more complete reporting. The number of school-leavers who came to vocational counseling rose from 140,000 in 1923/24 to 194,000 a year later, a jump of nearly 40 percent.³ Yet the quantitative growth fell far short of the "total inclusion" for which the national authorities aimed. Despite the absolute rise in cases, because the number of school graduates rose even faster, the percentage of school graduates "covered" by the offices actually fell slightly, from 33.3 to 32.2 percent.⁴

From their inception, the vocational counseling offices suffered from the devaluation of money. By 1922, when inflation accelerated dramatically, provincial offices in Prussia warned the central authorities that they faced "collapse." The "continually increasing internal frictions" in the labor offices arose principally from the "unresolved financial questions."⁵ In its appeal to the Reich Labor Minister, the Prussian Ministry of Trade explained that the financial "means of the cost-bearers, that is the provinces and the municipalities, are exhausted; and the legal situation is so dubious that real pressure cannot be exerted on the provinces and municipalities."⁶ The end of the inflation in late 1923 finally created a clear and stable monetary environment, but, in the eyes of the central Labor Administration, provincial governments continued to practice "excessive cut-backs" of vocational counseling personnel even a year after the end of the inflation.⁷

Nor had the 1922 Labor Exchange Law, which many had hoped would create a clear and binding "legal situation," satisfactorily resolved the financial question. The fact that local authorities bore one-third of the costs of the local labor offices and sat on the local administrative boards meant that local priorities—and often these favored saving money over funding a new, and as yet unproven, service—gave little support to vocational counseling.⁸ Provincial authorities granted numerous requests from local authorities, particularly those in more rural areas, to exempt them from Prussia's requirement that vocational counseling be estab-

lished universally.⁹ Given the organizational and financial structures of the Labor Administration and its offices, even after the 1922 Labor Exchange Law, interest in vocational counseling still depended to a great degree on the particularities of the local and regional offices, political forces, and economies.

The directors of the local offices, who were usually at the same time in charge of job placement, often devoted the most attention to the immediately obvious tasks of administering unemployment aid¹⁰ and job placement for older workers who had lost their jobs. As the Ministry of Trade had feared, when vocational counseling was paired with job placement, the former got short shrift. Maintaining public order had priority. Even in Prussia, in which vocational counseling had preserved greater autonomy within the labor offices, such complaints were common. At a meeting of the state vocational offices in March 1924, the first of its kind in three years and hence also since the implementation of the Labor Exchange Law, all representatives emphasized “with great force” that vocational counseling could only flourish if it were placed on an equal footing with job placement.¹¹

By the end of 1924, vocational counseling presented a mixed countenance. On the one hand, in the last year other states had followed Prussia in making vocational counseling offices mandatory, or were about to do so: Württemberg (January 1924), Thuringia (June 1924), Bavaria (in preparation).¹² The number of vocational counseling offices and the proportion of school graduates visiting them had grown considerably over the previous years; the system of public vocational counseling had assumed, in the words of its most important bureaucratic proponent, the Prussian Trade Ministry’s Schindler, “very considerable proportions.”¹³ On the other hand, the Labor Administration’s first national survey of the vocational counseling system painted a generally gloomier picture. “The development of the local vocational counseling offices varies greatly from state office to state office. It depends in part on the total structure of the district (population density, size of the city, degree of industrialization) and in part on the energy with which the state office ... takes on the matter.”¹⁴ This vigor, the report continued, was sorely lacking:

The activity of the state offices in the area of vocational counseling has suffered quite considerably due to the loss of personnel ... Open positions were often not filled again. Even where the vocational counselors themselves remained, they were so occupied by other work for the state office that their actual responsibilities had to take a back seat. This applies especially in the Rhine Province, Westphalia-Lippe, Lower Saxony, Saxony-Anhalt. Especially the reduction in number of female vocational counselors or their being heavily burdened with other tasks makes itself felt (Saxony, Brandenburg, Lower Saxony, Münster, the Rhine Province, Schleswig-Holstein). No vocational counselors whatsoever exist in: the Free State Saxony, Hessen, Hessen-Nassau and Waldeck, Baden, Mecklenburg-Lübeck, Oldenburg, the Border Region.¹⁵

If vocational counseling’s financing and organizational security remained precarious and varied from district to district in the first years of the Labor Administration, its relations to key actors in the labor world were at least as important

for its success—and at least as fragile. Vocational counseling's most important relationships were with the parents of school graduates and the general public, with the schools, and with employers.

Even if the abstract idea of vocational counseling for the sake of optimizing the workforce, of *Menschenökonomie*, enjoyed support from nearly all political parties and much of the population, the vocational counseling offices that sprang up in the years 1918 to 1924 were themselves, in the eyes of many, unfamiliar and unproven institutions. Without a legal means to compel all graduating students and job seekers to use the offices, vocational counselors had to earn the public's and, especially, parents' confidence.

It was not accidental that, in the early years, a considerable portion of the vocational offices' efforts went into "propaganda."¹⁶ In a situation in which the vocational offices were still coming into being and defining their roles, the particularly active counselor in Offenbach recommended, "it is first necessary to propose to the public, and in particular the interested circles, as clear a picture as possible of our tasks."¹⁷ Even when the public knew what vocational counseling offices did, parents were often indifferent or skeptical. In the Rhine district, for example, school authorities reported on the slow progress in convincing parents and students of the importance of vocational counseling: along with a certain reticence about seeking advice and the parents' knowledge of good apprenticeship positions, the need to earn money quickly (and hence to enter unskilled work) militated against getting advice.¹⁸ Such short-term calculations were, of course, precisely what the advocates of vocational counseling were trying to forestall.

A persistent, and for the Labor Administration particularly serious, source of the public's caution vis-à-vis the vocational counseling offices was their reputation for "bureaucratism." This was the criticism most frequently leveled against their offices in the press. Occasionally, the charge could implicate the ostensible (and indeed quite real) attempt of the Labor Administration to gain a monopoly on job placements.¹⁹ Far more frequently, however, the ultimate *goal* of "complete inclusion" of the labor market met with widespread, and often impassioned, support.²⁰ A far more prevalent complaint objected to the "bureaucratic" *methods* of the vocational counseling offices. As the Prussian Trade Ministry had feared, vocational counseling suffered from its close association with the labor offices, whose "bureaucratic schematism" one paper characterized as "to some extent the unavoidable fate of a public entity committed to mass operations."²¹ A vocational counselor visiting a school, another paper lamented in an article entitled "False and correct vocational counseling," lectured to the school children for an hour and a half and left almost no time for questions at the end.²² What these parents and the critics of the bureaucratic aspects of vocational counseling explicitly or implicitly demanded was that the vocational counseling offices become able to judge "the individual distinctiveness of the young people."²³

Both the central ministries concerned with vocational counseling as well as the local offices responded to these criticisms in a number of ways. Each time a critique of vocational counseling appeared in the press, the central authorities

were quick to offer a rebuttal in kind. From 1925, favorable “propaganda for the ideas of vocational counseling” was also made by the new medium of radio.²⁴ At least the most engaged vocational offices—and here, as in many other areas, local variety was the norm—utilized regular “parent evenings” to gain the support of this important group.²⁵ In addition to these forms of “advertisement,” vocational counselors, initially at the local and state levels, and later nationally, sought to address the most serious critiques of the current practices. In particular, in order to gain the support of the public and especially of parents, they wanted to combat the impression that vocational counseling offices were bureaucratic institutions that treated school graduates as faceless numbers and were incapable of recognizing their “individual distinctiveness.”

At least as significant as the support of the general public and of parents was the cooperation of the schools. Thus, the vocational counselor in Offenbach began his review of the office’s highest priority, “propaganda,” by noting: “First, we had to win the teachers for active participation.”²⁶ The school’s importance to vocational counseling derived from three factors: the former’s proclivity to do counseling itself had to be eliminated; in the absence of a legal requirement that students visit vocational counseling, the schools would play a key role in “delivering” graduates to the labor offices; finally, the teachers’ observations of their students—which, as was often emphasized, were based on a much longer acquaintance than the vocational counseling offices ever could achieve—ought to be an important element in the vocational office’s matching of “the right man and the right job.”

Even when the central ministries made promises to the contrary, the schools remained real, or at least potential, rivals to the vocational counseling offices. The existence of a comprehensive network of schools, teachers’ often intimate understanding of their students’ personalities, and parents’ generally high regard for teachers—all of which had made the schools the basis for vocational counseling in most other western countries—meant that schools enjoyed significant advantages over the nascent Labor Administration. While the Labor Administration could boast that even before the Labor Exchange Law (1922) gave the labor offices (primary) responsibility for vocational counseling, only 2.4 percent of vocational offices had been affiliated with schools (and, by contrast, 67 percent with labor offices),²⁷ numerous school teachers practiced an “unofficial” counseling of their pupils. As the provincial office of the Prussian Education Ministry in the Rhineland reported in 1921, “[s]ince the vocational offices for the most part are still failing or because the parents and students stay away from them and prefer to turn to the teachers, the schools undertake, in fairly large number, the vocational instruction of their charges.”²⁸ For their part, many teachers objected to what they perceived as the labor office’s attempt “to deprive them of the right and the duty to concern themselves with the future of their departing students.”²⁹ Even after passage of the Labor Exchange Law, and despite considerable efforts on the part of the labor offices to gain the unstinting support of the schools, teachers and school directors continued to counsel students and to place them with employers.³⁰

Beyond tamping down the brushfires of teacher counseling, the labor offices also sought more positive contributions from the schools, especially pivotal assistance in achieving “complete inclusion.” An early dispute in Kassel between the school authorities and vocational counseling office raised the issue of how the schools should report on their children to the latter office. When the Kassel schools decided not to automatically send evaluations for all children, but only when their parents requested it, only eight children came to vocational counseling “of their own accord.”³¹ In response, the Trade Ministry insisted that providing school reports “for, if possible, all graduating students” remained necessary, for experience had shown that “if one made the filling-out of the questionnaires purely voluntary, vocational counseling would remain ineffective.”³² By February 1920, the Trade Ministry’s insistence on this point had resulted in the Education Ministry instructing school authorities, “[g]raduating students should be urged at every suitable occasion to visit these vocational counseling offices. If the school is sent questionnaires from the vocational office, the school director is to supervise the thorough response and to provide, for example, in accordance with his best knowledge and conscience, requested information on the probable vocational suitability of students.”³³ Of course, a directive from the central authorities often was insufficient to guarantee compliance by the local authorities. In the absence of a legal mandate for *Totalerfassung*, the schools’ role in “delivering” their students to the labor offices would become the labor offices’ prime instrument for achieving “total inclusion” for much of the next four decades.

A third sphere of interaction between vocational office and school, in addition to efforts to end teacher counseling and to enlist schools in the “delivery” of students to vocational offices, was the design of the aforementioned vocational questionnaires. I will restrict myself here to noting a significant constraint on the school form. The cooperation from teachers and school directors in answering the vocational office’s questions remained often halfhearted and (to the latter) unsatisfactory. Teachers—often nonplussed since they were now expected to aid the very institution that had usurped their role—complained repeatedly about the time- and energy-consuming “burden” of filling out the forms³⁴ and about being “flooded” with demands for “bureaucratic writing and listing tasks.”³⁵ Their refractoriness moved the Labor Administration to warn that the questionnaires “should not be too long or go beyond the most necessary aspects.”³⁶ While the cooperation with schools would become smoother over time, the tensions over the school questionnaire contributed to new attitudes within vocational counseling about the school’s role and its own in evaluating job seekers.

More vital still to the practical success of vocational counseling than its relations with parents or schools was its standing with employers, who crucially retained ultimate control over the hiring of workers and were not obliged to use the labor office’s services. As the office in Offenbach succinctly explained the necessity of good relations with the employers, “If we control the apprenticeship positions, the youths and their parents will follow.”³⁷ While the responses of employers to the current state of vocational counseling, like so many aspects of

the Labor Administration, varied according to local circumstances, the general tenor in the years 1918 to 1924 was one of mistrust. Most employers did not condemn vocational counseling per se, but rather condemned its close link to the bureaucratic, SPD-tinged labor offices. In December 1922, the employers' organization, by now feeling less and less bound by its prior pact with the unions, had condemned the ANG's subordination of vocational counseling to the labor offices in the harshest of terms: a "suitable vocational policy," which required among other things "precise knowledge of the individual vocational qualities and necessities," never could be achieved by the labor offices with their "extreme mass operations."³⁸ At the local level, many employers' mistrust of the "bureaucratic" labor offices persisted. The vocational counselor in Offenbach reported:

The dislike of public job placement has been transferred in many places from the labor exchanges to the vocational offices as well, particularly where the vocational counseling is handled in a section of the labor office [precisely the prescription of the 1922 ANG]. One can say—without wanting to diminish the valuable work of the labor offices—that many employers only turn to the labor office if contracts with unions compel them to or if they can find workers nowhere else.... As we know from experience, the vocational office is often regarded and treated like a "labor office for youths."³⁹

While the vocational office in Lübeck expressed a certain self-satisfaction a year later over the proportion of apprenticeships it helped bring about, it indirectly admitted to frustrations similar to those in Offenbach: its "task" would be "more and more to gain the trust of the employers."⁴⁰ Handicrafts, in particular, which during the war was the inspiration for Prussia's pioneering vocational counseling edict, but now had a surfeit of applicants and felt antipathy toward what it perceived to be Weimar's socialist ethos, regarded public vocational counseling and apprenticeship placement with "great mistrust" and expanded its own placement systems "by all available means."⁴¹

As with the parents and public, the work of gaining the employers' trust consisted, in part, of active "propaganda": letters to companies and visits to owners and even shop foremen, who often made the ultimate decision on engaging apprentices. "We consider especially the personal contact with the companies," the office in Offenbach emphasized, "to be very important."⁴² These appeals, however, would have been ineffective, had the vocational offices not simultaneously addressed the criticisms made by its most important constituencies. Parents and, even more importantly, employers regarded the vocational offices with indifference or even suspicion and hostility for similar reasons: both criticized the offices for being "bureaucratic," that is, for caring more about the number of visitors they advised than about the quality of the counsel, in particular in matching the individual qualities of each job seeker to the requirements of particular vocations. The program to promote skilled work was still caught between two goals that were difficult to reconcile: being comprehensive and being effective.

A further serious impediment to the program arose from the still unsettled legal status of vocational training. After the war, the Central Working Associa-

tion (ZAG) and then later the Reich Economics Ministry had drafted a bill that would have established uniform regulations on training for all branches of the economy, thus eliminating *Handwerk's* special status and possibly mandating some form of universal training. However, political struggles between employers and unions over the control of training delayed passage of the law, especially as socialist power waned in the early 1920s.⁴³ For the time being, at least, the demand for training depended solely on the needs of *Handwerk* and industry.

Building the Personnel and Substance of Vocational Counseling

In his sobering assessment of the state of vocational counseling in December 1921, Counselor Knoff had emphasized problems with the quality and training of personnel, knowledge of the different vocations, and the school questionnaire, which was the most important source of information on the youth. We now look at vocational counseling's efforts to improve in these areas, as well as another subject that Knoff might have mentioned but did not: applied psychology.

Well before Knoff's critiques, local authorities in fact had begun to train their vocational counselors. The latter, whose very position was, of course, a new creation, had until recently been teachers, trade instructors, and civil servants. Of the roughly 600 vocational counselors in 1925,⁴⁴ a survey revealed, 5 percent had had a profession requiring university training; nearly a quarter had been teachers of one sort or another; 55 percent had worked previously in other welfare offices; and 7 and 8 percent, respectively, had been civil servants and business- or tradesmen.⁴⁵ Their knowledge of particular vocations was thus often circumstantial, unsystematic, and limited in scope.

The earliest local and state-level courses for vocational counselors were of quite modest scale. In December 1919, the state labor office in Westphalia-Lippe offered one of the first.⁴⁶ Over four days, labor exchange officials and vocational counselors from the north-Rhine area, as well as interested others, heard lectures about a variety of topics, including "the development and tasks of vocational counseling, with special regard to the conditions created by the war" (by the Trade Ministry's Schindler), "vocational counseling for women," and "the collection of vocational information." In the next years, numerous towns and state offices put on conferences of similar length and subject matter.⁴⁷

On a more permanent basis, the Prussian Trade and the Reich Labor Ministries contributed funds to the Seminar for Job Placement and Vocational Counseling at the University of Münster, which began instruction in May 1920, but remained too theoretical to be of practical use.⁴⁸ At the Reich Labor Office's first major meeting on vocational counseling, held in November 1920, participants emphasized the importance of the training of the counselors and the "decisive significance" of attracting "suitable personages to this office of high responsibility." Currently, it was generally agreed, their training was "deficient."⁴⁹ By late 1921, concerns about the state of vocational counseling⁵⁰ had mounted to such

an extent that “numerous and various sides” urged the Brandenburg office, which had taken a lead in reform efforts, to call a meeting of *Land* labor and vocational offices,⁵¹ at which Knoff would make the pessimistic assessment cited earlier. In his “theses” for the meeting, Knoff was even more damning: “Dilettantish occupation with vocational counseling, interest in the relevant questions, and good will alone cannot be regarded as sufficient prerequisites for vocational counseling.” In their place, he proposed the creation of a “well-ordered course of instruction” that would last—“for the time-being”—a year-and-a-half and conclude with a final exam. But the proposal failed to gain broader backing as current circumstances made it financially untenable. The municipal jurisdiction over vocational counseling meant that the Reich could not even promulgate unified standards for counselor training. It was precisely such circumstances that would make the advocates of a comprehensive system of vocational counseling anticipate the salutary effects of the Labor Exchange Law—and experience disappointment over its equivocations in this regard. In the end, the Trade Ministry’s Schindler only could promise to publish an essay on the matter in the journal *Work and Vocation*, and “hope that through the public discussion the matter would be further clarified.”⁵² The Trade Ministry had founded *Work and Vocation* in 1921, and the journal immediately became the flagship of the vocational counseling movement, providing a forum for discussion, disseminating ideas and best practices, and boosting the esprit de corps of the tyro counselors.

By the late summer of 1923, a survey revealed that “despite the best of intentions, which many vocational counselors demonstrate, success remains elusive due to insufficient training.” Numerous state and municipal offices offered some form of training, but “the cost-issue” had so far prevented extensive courses, and quality varied greatly, from Württemberg, where the part-time counselors received books to read and later discussed them in Stuttgart, to the four-week course in Dusseldorf.

The complement to the training of vocational counselors and the second, often closely linked, area of reform was the systematic development of knowledge about the vocations. Efforts to improve vocational knowledge followed a path somewhat similar to that of training reform, though in the former case the impediments lay less in the pragmatic realm of financing and jurisdiction, and more in the task itself. What was most important to know about a line of work? How should one find it out? Even among backers of vocational counseling, there was disagreement about how precisely one could and should try to match a young person and a vocation.

As with the counselors’ training, the initiative to gain a better understanding of the various vocations came not from Berlin, but from those closer to the actual practice, from the provincial and state offices. Two approaches vied for support. Brandenburg’s plan would encompass gathering information widely: on vocational training, and its regulation by public offices, organizations, etc.; on the development of the vocations; on wages and contracts; on vocational statistics; on the practice of vocational counseling; and on the relevant literature.⁵³ Saxony-

Anhalt's model, which would become the standard for the Labor Administration's "vocational profiles" for the next four decades, focused more narrowly on personal characteristics relevant for each vocation: those "necessary," "excluding," "particularly useful," and "not excluding."

When a compromise between the two was reached, the central authorities, increasingly anxious not only about the financial straits, but also about the poor quality and reputation of the vocational offices, sought to develop national standards. At a meeting attended not only by representatives of the central and state offices, but also by labor and business leaders, the Prussian Trade Ministry's Schindler underlined the urgency of the matter:

[Along with the lack of suitable personnel for vocational counseling] there is a lack of content to be poured into a definite form. To that end, what is above all necessary is the creation of vocation-informational material and the completion of vocational research.⁵⁴

The work, launched in late 1922, stalled for reasons both practical and theoretical. Hyperinflation of printing costs had just begun to soar. The desire to produce "scientific" vocational profiles conflicted with practical considerations of timeliness and general accessibility. The question of how specific vocational profiles—and recommendations—should be also reflected the underlying debate over visions for optimizing the German workforce: what role would centralized distribution play? Since the war, the Trade Ministry had certainly incorporated this style of thought more fully into its own proposals. Yet compared to the most eager advocates of comprehensive knowledge and control, the Prussian ministry remained skeptical. Schindler, in commenting on demands to apply psychotechnics to vocational choice, dampened hopes for a precise distribution of workers:

The significance of "vocational suitability" is exaggerated to a considerable degree among ... psychotechnicians; one often overlooks the fact that most people are suited to several vocations and that the "suitability" will never allow itself to be measured as one measures height. I believe that the focus of vocational counseling lies largely in the areas of knowledgeable information on the vocations, their prospects, essence, and demands; such information is for the most part lacking. That at the same time a serious test of the vocational aspirant himself must occur—this seems to me self-evident; but the test will never have the result that with mathematical certainty "the" vocation can be determined.⁵⁵

A third area of reform in the early years of vocational counseling—the school questionnaire—remained, despite its widely acknowledged importance, less tractable. More than in the other two realms, in matters of the school questionnaire, local and state level initiatives set the agenda; the central authorities remained exceptionally cautious.

Undoubtedly, the main reasons for the central authorities' reserve were the simultaneous dependence of vocational counseling on the schools and the rivalry between schools and vocational counseling; unlike in the cases of counselors' training and vocational profiles, if authorities wanted to improve the vocational

questionnaires, they would need the cooperation of another, at times ill-willed, institution. And yet, at least in this first period, the Labor Administration perceived the teacher's evaluation as potentially the most valuable source of insight into the applicant. In a memo to the Labor Ministry, the Labor Office justified the school questionnaires:

If vocational counseling is to take not only the economic aspect into account, then the counselor must try to gain insight into the personality of the advice-seeker. Opportunity for thorough personal observation will only present itself to the counselor in the rarest of cases; he therefore needs to rely on the observations of a third party [i.e., the school].⁵⁶

If the central authorities' concern to foster good relations with the schools made them wary of precipitous reforms, local and state vocational offices were less cautious. In the first years of the vocational offices, nearly all of the state offices had developed questionnaires that they expected the teachers to fill out,⁵⁷ as had the larger cities such as Berlin, Breslau, Hamburg, Leipzig, and Munich.⁵⁸ Though some offices reported a fruitful cooperation between the schools and counseling offices in this regard,⁵⁹ in most the results were inconclusive or disappointing.⁶⁰

The most determined and ambitious effort to implement a uniform questionnaire, that of Saxony-Anhalt, and the Labor Office's ambivalent reaction illustrate the thorny substantive and tactical questions involved. The early experience in Saxony-Anhalt pointed to two fundamental constraints on the school questionnaire: on the one hand, the first questionnaire that had been introduced, which required the teacher to make a single evaluation at the end of the students' school career, soon had proven to be inadequate and to require replacement by an evaluation of the pupils "through time." On the other hand, all previous attempts at such "continual questionnaires" seemed to be "too extensive." A year later, after further consideration, Saxony-Anhalt proposed to implement its revised school questionnaire throughout the entire state. In addition to asking about the student's grades and physical health, the questionnaire solicited reports on the child's "character and work habits" for each of his years in school. It provided a framework for the teachers' comments, but encouraged them to expatiate: the first subsection, entitled "general abilities," asked about the student's "general behavior," "interests," "particular achievements," and "other." The second subsection, "work abilities," required the teacher's comments on the pupil's "intellectual vigor," "memory," "independence," "resilience," "attentiveness," "speediness," "steadiness," "adaptability," "resistance to fatigue," and "other." By the end of his schooling, each student's teachers—assuming they had dutifully fulfilled their obligations—would have amassed comments on these qualities for each of eight or ten years.⁶¹

In its commentary to the Labor Ministry, the Reich Labor Office, while expressing gratitude for the general interest of the state offices in school questionnaires, emphasized caution and criticized Saxony-Anhalt's proposal, about which it "must raise objections." The first attempt to introduce a questionnaire on a large scale "ought not to involve such an extensive form." If the public vocational counseling offices did not proceed "quite gradually" on these matters, the teach-

ers would not cooperate; before one could proceed with a wide-scale introduction, one would have to ascertain in smaller trials that the procedure was feasible and worthwhile, and also that the vocational counseling offices could make use of them.

While Saxony-Anhalt's effort was perhaps the most ambitious, it was not the only one. In the same period, other states attempted, or at least considered, the introduction of similar uniform questionnaires.⁶² The central authorities continued to be cautious: in light of the resistance of many teachers, evaluations of students should be kept "as brief as possible and only retain that which is absolutely necessary for the purpose of vocational counseling." Specifically, experience had shown that such questionnaires had been introduced most successfully, "the more they restricted themselves to the capture of externally clearly identifiable things and, in addition, the more they encouraged the teacher to express himself freely."⁶³ Each of these two qualifications, however, might conflict with important goals of vocational counseling: the first, because vocational counseling was particularly interested, not in external, but in inner qualities such as motivation and conscientiousness; the second, because "free expression" made systematization all but impossible. Thus, in the first years of vocational counseling, the incorporation of the schools remained a particularly vexing and largely unresolved problem.

The advocates of universal vocational counseling had for some time expressed interest, however cautiously, in another way to improve their service: by turning to the emerging field of applied psychology. The wartime successes of applied psychology, especially in selecting people who needed special, usually sensory motor, skills (airplane pilots, truck drivers, battlefield spotters, etc.), had helped to fuel a postwar wave of enthusiasm for "psychotechnics."⁶⁴ Universities devoted chairs and institutes to applied psychology; numerous new journals covered the field; along with public authorities such as the railroad and armed forces, industrial giants like AEG, MAN, Vereinigte Stahlwerke, and Zeiss all had their own testing stations to select workers.⁶⁵

Soon, however, controversy and conflict began to cast shadows on psychotechnics' rapid growth. In both theoretical and applied psychology, methodological and substantive debates—among other things, about the role of quantitative testing, the relationship between "elementary" attributes and human "wholes," and the relative importance of abilities on the one hand and motivation or personality on the other—pitted schools against each other. In the rapid proliferation of psychotechnics stations, the influx of non-psychologists threatened more serious damage. The overwhelming enthusiasm for psychological testing, the Labor Administration and government ministries noted with alarm, had inspired "dilettantes and quacks" to try their hand at testing, whose extravagant claims and meager results would greatly harm legitimate psychotechnics.⁶⁶

The Prussian Trade Ministry and the Reich Labor Administration, in particular, remained torn over applied vocational psychology. Especially for the Prussian Trade Ministry, applied psychology appeared to be a double-edged sword as a practical-political instrument of vocational counseling: useful in providing in-

dividualized services and combating the offices' reputation for "bureaucratism," but potentially harmful if the unproven techniques and practitioners tainted vocational counseling itself. Such concerns framed the central authorities' cautious policies toward applied psychology.

Reports from state and local labor offices revealed an array of attitudes toward applied psychology, depending on personal conviction, but even more so on the local economic conditions. In the early 1920s, the great majority of labor offices abstained from using psychological tests or evaluations, whether because they were still engaged in establishing more basic services, because austerity did not permit, or because they viewed psychotechnics with skepticism. Of those that did, many seem to have been motivated by genuine enthusiasm for the possibilities. In January 1923, the labor and vocation office of the Rhine Province informed the central authorities that, despite the fact that "in many places the endeavors of psychotechnics encounter resistance and that doubt is cast on its successes," it would proceed to establish psychotechnical facilities. They could draw on "good preparations and rich experiences," and their program would be limited to narrow bounds.⁶⁷ At nearly the same time, the Silesian vocational office expressed even more forcefully its determination. Since organizational matters could be regarded as nearly completed, the office wrote, it believed it was now "urgently necessary" to devote "special attention" to psychotechnical vocational counseling.⁶⁸

Further reports, in particular from local labor offices, shed light on the reasons for vocational counseling's interest in applied psychology, in particular the close correlation between industry and psychological testing. In August 1923, the Offenbach office explained that it "performed the great majority of examinations spontaneously, but in part also in commission of companies or wavering parents." It highlighted the role of psychological testing in the office's relations with local firms:

The preceding remarks have already revealed the importance we accord psychology, but also especially which *successes* the vocational office has achieved with industry thanks to psychology. Without exaggerating, it can be said that we have won large industry primarily through our institute.⁶⁹

After describing companies' initial mistrust of the new bureaucracy, the Offenbach report explained their change of heart:

Some skeptical employers were only won over, when we explained our methods—through personal exchanges, numerous slide shows, and tours of our institute. From this moment on, we are more capable than he, we are acknowledged experts. As "a man of practice" he can choose apprentices on the basis of school reports and external appearances better "than any bureaucrat"—now, however, he recognizes that the scientific method is better than his own, which is based on feelings, and he acknowledges the scientific method all the more when he, despite everything, retains freedom of choice in the final selection.⁷⁰

The Breslau vocational office reported a similar process of appeal to the local business community and an even more positive response. In the summer of

1922, the director of the office had given a lecture “with slides” at a conference of Silesian employers, whereupon “funds were given to the vocational office for the purchase of a simple apparatus.” In the year since then, “personal appeals” by the director had moved numerous employers to donate further sums and equipment; with the help of the Silesian Central Employers’ Association, the Breslau office had set up a psychotechnical institute for testing.⁷¹

In these and other cases, the role of the vocational office’s psychological testing had evolved in a similar direction: in the absence of a legal mandate, psychological testing proved to be a useful tool for binding the local employers to the labor offices. A meeting of vocational counseling leaders in 1924 confirmed the strategic utility of testing: “Almost without exception [the directors of vocational counseling] expressed the conviction that vocational counseling must support vocational psychology in a determined way, if only for the reason that industry and crafts are placing more and more weight on it.”⁷²

Even as the legal and institutional framework for a national labor administration and for statewide systems of vocational counseling was being set up, then, advocates of a comprehensive vocational counseling were at work on the substance of vocational counseling. In addition to their no doubt sincere desire to make vocational counseling a more effective tool for matching youths and jobs, the vocational counselors were responding to two challenges. While the 1922 Labor Exchange Law gave a de facto monopoly on public vocational counseling to the network of labor offices, other institutional rivals remained—in particular, the schools, but also other offices of Weimar’s burgeoning welfare state. The efforts to improve vocational counseling’s procedures were, in part, efforts to outperform such rivals. At the same time, the Labor Exchange Law failed to make mandatory the use of the vocational offices either for job seekers or for employers (as many had demanded). Thus, the vocational offices had not only to overcome institutional rivals, but also, crucially, to *convince* their potential constituents of their worth. These considerable pressures to improve vocational counseling encountered limits due to the strapped financial situation of Germany at the time and to the challenges inherent to the tasks. In each area of reform—counselor training, vocational knowledge, the school questionnaire, and psychological evaluations—a common theme was also the tension between the desire, on the one hand, to apply scientific and exhaustive knowledge and, on the other, to achieve immediate, practical success.

Reframing the Skilled Worker: the Institutional and Psychological Origins of the German Vocational Training System

As these efforts to improve vocational counseling made clear, employers’ attitudes toward the Labor Administration and, even more crucially, their policies toward their workforces remained decisively important in the attempt to steer young people into skilled work. Employers did not view just the labor offices’

“bureaucratism” in selecting workers with skepticism. In the early 1920s, many doubted that selecting workers, or at least skilled workers, was of importance at all. To understand why this was the case—and why in the middle of the decade it suddenly changed—we first must assess the state of German industry and the kind of “rationalization” it pursued in the years after the war.

Despite the extensive literature on Weimar Germany and its economy, only fairly recently has a convincing picture of German firms’ production strategies in the 1920s begun to emerge. When previous works addressed German industry’s “rationalization” movement, they started from the universally held premise that rationalization was a homogeneous process resting on mechanization and deskilling.⁷³

In the harsh economic environment of post–World War I Germany, *interest* in rationalization, a rubric potentially including attempts to make virtually all aspects of life more productive, was exceptionally strong. The topic of rationalization was the subject of a broad public discussion throughout the 1920s,⁷⁴ and various organizations, both public and private, promoted it in its various manifestations. In part with the support of such national organizations, and in part on their own, German companies were the primary movers of rationalization. Approaches to improving productivity varied from industry to industry and even from firm to firm. In the heavy industries such as coal, iron, and steel, many of the productivity gains came about through so-called “negative rationalization”—shutting down unproductive operations and merging others. Mechanization also played an important role, for example, in the introduction of the pneumatic jackhammer in coal mining.⁷⁵ Improvements in transportation within the factory, whether by adding motorized vehicles or reorganizing workflows, became a major focus in nearly all branches.⁷⁶ In manufacturing, the most dynamic sector of the German economy since the late nineteenth century, considerable attention focused on developing new materials, such as high-speed steel for machine tools that were more productive⁷⁷ and better motors and control systems.⁷⁸ Undoubtedly, a major aspiration of many in the rationalization movement,⁷⁹ inspired by the ideas of Frederick Winslow Taylor and Henry Ford and the breathtaking production results of the latter’s automobile works,⁸⁰ was to maximize the division of labor and to move to mechanized assembly line, or at least “flow,” production.

Yet despite the widespread enthusiasm in Weimar for “Fordism,”⁸¹ the actual pace of mechanization and introduction of assembly line work was, in fact, far slower than the contentious public debates at the time about “*Rationalisierung*” or the later de-skilling literature suggested.⁸² Particularly in the manufacturing sector, a number of factors set limits to the introduction of Fordist methods. In some of the most important production spheres, the nature of the product itself—whether machine tool or electrical motor—precluded substantial division of labor or mechanization. Due to trade restrictions imposed after World War I, in effect until 1925, and to the US success in increasing its share of world exports in manufactured goods, German companies, at least initially, had to focus on their own, much smaller, domestic market. This meant, compared to the US

competitors, much less opportunity to secure the stable consumption pattern necessary for economies of scale.⁸³ In other ways, as well, German economic and social conditions did not make mechanized assembly line production seem suitable. As one commentator at the time expressed the difference between the US industrial pacesetter and Germany: “there, plentiful and cheap capital, scarcity of human labor and high wages, here, scarce and expensive capital, excess of labor and wages that are only about 1/4 the American level.”⁸⁴ Indeed, one of the conclusions that many of the numerous industry and union leaders who made pilgrimages to the US reached was that Germany, while it should adopt *some* of the New World’s innovations, must develop its own forms of rationalization.⁸⁵

In almost all cases, companies chose, or learned from experience, to adopt mixed strategies that integrated improvements to physical *and* human capital. Even as more machinery was introduced, the skilled worker generally became *more*, not less, important. This was the case even in the so-called heavy industries.⁸⁶

The trend was especially pronounced in manufacturing. Electro-technical products and non-electrical machines had been Germany’s leading exports during its rapid industrial expansion in the three decades prior to World War I, and afterwards as well these industries were the most dynamic parts of the German economy. As the leading role of such men as Carl Friedrich von Siemens and Carl Kötting in the National Productivity Board suggested, these industries were at the forefront of efforts to rationalize German industry. In both industries, rationalization entailed substantial “learning processes.”⁸⁷ In the early postwar years at Siemens, as at many other firms, the guiding principle of rationalization was the central collection of information, development of best procedures, and implementation. The “work bureaus,” established in the company’s major factories between 1919 and 1921 to coordinate production,⁸⁸ and the “production-technical conferences” held since early 1921 to coordinate across the factories exemplified the drive for centralized control.

The impediments to rationalization in Germany along US lines, however, were significant. In Siemens’ production of electric motors they included:

[T]he particular nature of the motor construction, which resulted from the production of a multitude of types of motors in changing series; the technical-constructive evolution of the motors which in the 1920s and 1930s was “completely fluid” due to the switch in machine-making to the electric single- or multiple engine drive; the highly differentiated demand for electrical motors, which hindered a reduction in the variety of types and in special models; the strong competition for market advantages among the various motor-producers, which prevented quick progress in the norming and standardizing work; the significant proportion of work-by-hand requiring the highest precision; the technical-constructive backwardness in machinery and ancillary equipment, when compared to the achievements of the new hard-metal machine tool blades; and finally the shifting sales situation and the health of the economy.⁸⁹

German machine-building companies often opted for a middle strategy of flexible rationalization, which aimed to take advantage of mechanization and reorga-

nization to the extent that these did not reduce the firms' abilities to respond to frequently changing market conditions.⁹⁰

Contrary to contemporary fears about (and some later assessments of) the impact of Fordism, German manufacturing's strategy of flexible rationalization did not lead to a net replacement of skilled workers by unskilled ones. Purely quantitatively, the proportion of skilled workers remained the same or, if anything, rose during the 1920s. The second and third national surveys of workforce composition, conducted in 1907 and 1925, described an increasingly skilled workforce. While the prewar census showed unskilled workers to be 41 percent of the total, by 1925 this figure had fallen to 34 percent.⁹¹ Of the young men born in 1901, who thus entered the workforce in the final, wartime, years of the Empire, nearly equal proportions had only an elementary school education (37.6 percent) and a supplemental crafts or industrial apprenticeship (38.4 percent). By comparison, in the mid 1920s, the percentage of those joining the workforce who had completed an apprenticeship had risen to 52 percent.⁹² The 1920s witnessed an unprecedented wave of foundings of company training centers for apprentices.⁹³ The more detailed studies of particular firms and industries confirm these impressions of an increasingly well-trained, or at least not deskilled, workforce. At Siemens in the late 1920s, slightly more than two-thirds of all workers had completed a three or four year apprenticeship or its equivalent in on-the-job training, and in total, 40 percent were "highly qualified."⁹⁴ In the following decade, when the electro-technical industry more generally began to survey its member firms, the latter reported that more than 70 percent of their workers were skilled or semi-skilled.⁹⁵ At Bosch, too, in the 1920s, the proportion of unskilled workers declined generally. As one index of this development, the number of unskilled male workers as a percentage of the entire workforce at Bosch declined steeply in the years after 1925: from 17.5 percent in 1926, to 12.5 percent a year later, and 11.4 percent in 1928.⁹⁶ The composition of the workforce at the machine-producer MAN's Augsburg factory followed a similar pattern. The percentage of skilled workers climbed slightly between 1920 and 1930, rising from 47.5 percent in 1920 to as much as 55 percent in 1927 and falling back to 50 percent in 1930, during the Depression. That of unskilled workers dropped steeply, from 34 percent of the workforce in the first year to 15 percent in 1927 and 14 percent in the final year. These untrained workers were replaced by the fast-rising proportion of semi-skilled workers, whose share of the workforce rose from 18.5 percent to 30 percent to 36 percent.⁹⁷

The importance of skilled and semi-skilled workers to the German firm and economy is not captured adequately in the figures alone. Of great importance were the employers' subjective evaluations of the *gelernt* or *angelernt* worker's role in the production process and their assessment of the trained worker's potential contribution to the firm. The way industrialists conceived of their workers mattered.

The case studies of rationalization cited above suggest that employers' thinking on this subject evolved over the course of the 1920s. A debate took place within German machine-manufacturing about whether its future lay with "special" or

“universal” machines, that is, with machines that could perform only single, uniform tasks and hence required only unskilled or, at most, semi-skilled laborers or conversely with machines that could be reconfigured to perform multiple tasks, thus requiring skilled workers.⁹⁸ In fact, the debate was not new. As we saw, around 1900, German industry was ambivalent about its future production strategies.⁹⁹ The emphasis on mass production during the war and progress in norming had appeared to boost one side. As German industry by the mid 1920s increasingly realized that it must opt for a “flexible rationalization,” its machine-tool sector obliged by producing machines in the middle range between special and universal. Initially, German machine-manufacturers “regretfully identified” this inability to move fully to mechanized “flow” production as “a further negative consequence” of Germany’s particular market conditions. Then, however, manufacturers began to recognize the “innovative potential of human labor . . . the specifically elastic potential of human labor, the productive ability to adapt to changing demands, its multifaceted applications and uses.” It was only because the German machine-tool industry (and by extension, other manufacturers as well) proved unable to implement full-scale flow production that it had the opportunity to identify the potentialities of human labor.¹⁰⁰ Likewise, Bosch, when confronted with the US automobile industry’s mass production methods, “turned a liability into an advantage” by consciously specializing in individual and special fabrications,¹⁰¹ which required skilled workers. At Siemens, company management had not always recognized the skilled worker’s importance, but there occurred in the firm “a central insight of the managers, dawning at the end of the 1920s, into the unchangingly high significance of the male skilled worker.”¹⁰²

The rationalization of German firms in the 1920s did not produce, then, a net “deskilling” of the German workforce, but to the contrary made the *Facharbeiter* appear all the more vital to the German variety of capitalist production. German employers did not immediately recognize the potential value of the skilled worker, but rather did so only after their thinking had evolved, though on this matter the scholars provide few concrete details and differ as to the timing of the transition.

As welcome as these recent revisions of our picture of German industry in the Weimar period have been, they fail to adequately convey the abruptness with which German industry’s thinking about the “human factor” of production changed in the mid 1920s, which did not reflect simply a gradual reassessment on the basis of accumulating evidence, but in many cases occurred as a “*Gestalt-switch*” in employers’ perceptions.

In the years after 1924, German employers increasingly began to see their workers differently. The change in perception of the worker, especially the skilled worker, the abruptness of the switch, and the continuing resistance to it were all subjects of frequent comment by industrialists and others. In June 1924, the National Productivity Board (RKW) devoted a session to the “training of young workers in the broadest sense,” one of the earliest (semi) public discussions of the issue. The first speaker, the head of the Association of German Engineers,

Conrad Matschoss, distinguished between the new US “Fordist” style of production and the German. The former trained its workers as quickly as possible for a particular, constantly repeated activity; the latter aimed to develop “quality workers.”¹⁰³ Another participant, Dr. E. Toussaint, a professor of engineering at the Berlin Technical University and industrial consultant, assailed the view that the development in the mechanical industry would eventually make the trained worker “superfluous.” Anybody familiar with the issue, he insisted, would “long since” have recognized that the opposite would more likely be the case and that it would be only a matter of shifting trained and capable workers to new positions. “In many cases,” Toussaint concluded, “the most thorough exploitation of the machine could only be guaranteed if a thinking *Facharbeiter* used it.”¹⁰⁴

The following year, the head of the Berlin vocational counseling office deemed it “an encouraging sign that so soon after the [military] collapse [the economy] has heeded the call to awake: ‘Above all, highest achievements in work and in the products of work must help to free us from the pressure of conditions brought about by the outcome of the war.’” As a result, “in all vocational branches today the call for ‘quality young-workers’ goes out.”¹⁰⁵ Somewhat later, one of the leaders of the psychotechnical movement, Hans Rupp, concurred: “The conviction that the greatest care must be devoted to the training of the workers has gained broad ground since the war. One recognizes more and more that for us in Germany strength and growth lies in superior work and therefore in the most careful training of the workers.”¹⁰⁶ In an article entitled “Man and Technology,” Matschoss burdened his own profession with some responsibility for the previous disregard for the worker: “We engineers, in particular, in the indefatigable work for economic-technical progress, for too long failed to make the fact clear to ourselves that we in our industry, which is based on this technology, can never dispense with man. Man and technology, man and machine belong insolubly together.”¹⁰⁷

As these comments have suggested, many perceived the interest in the *Facharbeiter* to be a new, or at least newly urgent, phenomenon. The director of the Working Committee for Vocational Training put the matter in historical perspective:

The fact that the vocational training of the workers is closely related to the productivity of the economy has been recognized for decades, if only at first by small circles, and practically useful work has been derived from this knowledge. New is the sudden dissemination of these insights and the systematic way and energy with which these tasks are tackled, which have appeared so forcefully on the level of economic and social-political issues.¹⁰⁸

The new view of the value of the skilled worker spread rapidly after the mid 1920s, but it did so only by overcoming persistent contrary beliefs. In describing the “young industrial worker in the modern factory,” an official of the Prussian Trade Ministry still felt obliged to brand as “false” the thesis “that in the future we can make do almost exclusively with untrained workers.”¹⁰⁹ Schürholz believed it necessary to “oppose the opinion that the skilled vocation in industry has largely become extinct due to increasing mass production and the influx of

perfected machines.”¹¹⁰ By 1930, the conviction that Germany’s economic future, though it undoubtedly would include more and better machines, lay in the hands of its skilled workers had displaced such doubts. A reviewer of the National Productivity Board’s volume on “Suitability and Quality Work” could confidently assert: “Value-work of the greatest perfection is the goal of German industry. A detailed justification of this position is today no longer necessary.”¹¹¹ Likewise, a leading functionary of the Association of German Employers’ Organizations referred assuredly to the “growing attention and estimation paid to the ‘human factor’ in the economy.”¹¹²

Why, though, did the turn to the *Facharbeiter* take place when it did, in the mid 1920s, and why did it take the form it did, that is, as a relatively sudden paradigm shift and conversion? The scholarly inattention to these issues means that our answers can be only fairly speculative.

By the mid 1920s, the unskilled worker had come to seem increasingly burdensome to German employers in several ways. Throughout the postwar period, but especially after the end of inflation, he had exhibited turnover rates higher even than before 1914, in some regions and industries reaching annually well over 100 percent.¹¹³ Thanks to the massive influx of unskilled workers into unions and to the greater bargaining power of the latter, significant wage compression occurred between unskilled and skilled workers after the war. The relative rise in unskilled workers’ wages made investment in worker training all the more attractive.¹¹⁴ Based on their experiences in the war, employers had concluded that the unskilled worker was also far more likely than the skilled one to be politically radical and hence a potential source of disruption to the factory’s smooth operation. Finally—and this concerned employers less directly and only in so far as they had to bear collective financial burdens—the unskilled worker constituted a disproportionate share of Weimar’s pool of unemployed people, which grew steadily after 1924 with only brief respites. The alternative to a high-skilled workforce, then, seemed increasingly unattractive.

For the first few years after the armistice, however, a variety of alternatives still seemed possible. The extension of wartime policies, the postwar inflation, and, from late 1922, hyperinflation temporarily permitted a remarkably smooth transition to peacetime production, but only by cloaking German industry’s true conditions in the haze of a depreciating currency, which gave their exporters a (constantly growing) advantage.¹¹⁵ In addition, the German demobilization policy, which prevented companies from releasing workers and perpetuated binding wage-mediation procedures, had significant effects on wage development, productivity, technical innovation, and investment strategies, further clouding employers’ perceptions about future conditions.¹¹⁶ As we saw above, German employers often seemed rather uncertain about what qualities made a good worker. The necessarily painful adjustment, which in the other belligerent nations had occurred soon after the end of the war, took place in Germany only from 1924 on, after a new currency and agreement on reparations restored monetary stability to the country and after the demobilization restrictions were removed. With German

companies having to sell their goods in a hard currency for the first time in years, competition in export markets stiffened considerably.¹¹⁷ German employers had to take stock of their position in new domestic and international environments.

Almost certainly, the most salient feature of the new international economic situation, the one to which both the German educated public and its employers paid the most attention in the middle years of the 1920s, was the spectacular growth of the US economy and its new forms of mass production.¹¹⁸ As has been mentioned in connection with Carl Köttgen's influential book on *Economic America*, the stream of German industrialists who visited the stations of US success after 1924 returned to their own country with two basic lessons. German industry would have to adopt some important innovations from the US; however, for a number of reasons, Germany also would have to pursue its own kind of rationalization. Numerous references in the burgeoning discussion at this time about German "quality work" suggest that the US system of production served as spur for the German industrialists to reconsider where their relative advantage lay.¹¹⁹ German industry would prosper or at least survive, not by competing with the US in the mass production of cheap goods, but in the more skilled manufacturing of higher-quality products.

German industry's turn to the skilled worker, as sudden and fraught with urgency as it was, bears the marks, not of a gradual accumulation of evidence and shifting of views, but rather of a reframing of thinking.¹²⁰ Certainly, as we have seen in earlier chapters as well as in this one, even before the mid 1920s German industry, or at least parts of it, had already begun to devote more thought and resources to worker training. Important stages in this development were the discussions of the 1870s about apprenticeships in handicrafts and industry and DATSCH's work after 1908. Yet as numerous commentators suggested after the mid 1920s, until then "the vision in economic and firm life focused on the whole too much on drawing the material (physical goods and machine power) into the circle of business considerations," while the "element that shapes the material, namely the working human, ... has been excessively overlooked."¹²¹

The focus on the "material" was, given developments since the turn of the century, in many respects understandable. Tremendously impressive or at least promising improvements, nearly all of them emanating from the US, had occurred in technology and organization. Frederick Winslow Taylor's development of fast steel in the 1890s had begun a cascading revolution of improvements in machine-tool design and use. Perspicacious German engineers not only adopted the new materials and methods for their own companies, but also, after 1907, promoted them more broadly through the trendsetting journal *Workshop Technology*. In chapters 2 and 3, we described the great enthusiasm among German engineers and industrialists for the new technologies, methods of organizing production, and, especially from 1917 on, for agreeing on industry wide norms.

The dominant themes of the early rationalization movement—machine-productivity, calculation, and control—could not but influence German industrialists' views of the worker.¹²² Of course, it is true that concurrent with these

efforts, some German employers (even the same ones, such as Ludwig Löwe) were engaged in improving the training of skilled workers: DATSCH (1908) was founded only a year after *Workshop Technology*. Yet as the managing director of the Working Committee for Vocational Training noted in 1926, until the recent wave of attention, the importance of the skilled worker's training only had been recognized by "small circles."¹²³ If the early rationalizers thought of the "human factor" in production at all, they quite naturally transferred the patterns of thought from materials, technology, and organization to this other sphere. That is, they thought in terms of calculation, control, and standardization. The human worker could be seen at best simply as an accessory to the machine, at worst as a potential source of disruption, as "sand in the gears."¹²⁴ Even when an advocate of rationalization became more interested in the worker, the conception of the worker remained mechanical. Thus, in 1913, the leading engineer of the German rationalization movement, Schlesinger, suggested that German industrialists, having spent sufficient time addressing technological and organizational matters, should concentrate now more on the human side of production.¹²⁵ As late as 1920, however, Schlesinger—like many other psychotechnicians—still saw the human factor largely as a potential disturbance, as something to be diminished as much as possible:

The most favorable separation of fundamentally different jobs means that the workshop of mass production makes do in far and away the majority of cases with semi-skilled workers, whose work-abilities depend little on experience and specialized knowledge and even less from high intellectual abilities. Rather, the sensory abilities of eye, ear and joints combined with a certain degree of attentiveness will suffice. The influence of attentiveness and of tiredness declines the more it becomes possible to remove the strain on humans in these regards by making the machines self-operating.¹²⁶

The (re)discovery of the potential contribution of the skilled worker in the mid 1920s did not occur, then, only as the result of gradual shifts in thinking. The "sudden spread"¹²⁷ of these ideas depended at least in part on a reframing of industrialists' views of the skilled worker, whose character qualities they now saw as potentially making a positive contribution to the company's success, who became, indeed, the source and guarantor of German "quality work."

The new view of the skilled worker not only stirred discussion of Germany's comparative advantage in the world economy, it also spurred German industry to cooperate to put training on a firmer, standardized basis. Its initiatives took place against the backdrop of first delays in, and then ultimately the postponement of, national legislation on vocational training. By the middle of the decade, observers had serious doubts whether the laws ever would be enacted, although efforts continued. Leading manufacturers, inspired by the new convictions regarding the importance of the skilled worker, decided to act regardless of the legislative outcome. One initiative, DINTA, has been extensively studied, but the more important projects of DATSCH and its Working Committee on Vocational Training (*Arbeitsausschuss für Berufsausbildung*) have received hardly any attention.

The founding of the German Institute for Technical Labor Training (DINTA¹²⁸) in 1925 has received more attention than the other two organizations in the scholarly literature.¹²⁹ In May 1925, in a speech at a gathering of the Association of German Iron and Steel Industrialists, its chairman Albert Vögler diagnosed that German employers had been ignoring the most important element in the production process: the worker.¹³⁰ The speaker Vögler then introduced outlined the tasks of a new organization, which German heavy industry (coal and iron producers) would launch several months later.

DINTA developed and propagated an array of programs and measures concerned with the role of the worker in the company and beyond. In addition to worker training, which would shape the incoming workers, DINTA promoted a range of steps to appeal to current, older workers, by strengthening the “factory community”¹³¹ and gaining the workers’ allegiance for the company. These included, most importantly, company newspapers, which DINTA set up or provided; suggestion-schemes to encourage the workers’ input into factory operations; and a variety of recreational and welfare policies pertaining to the laborer’s after-work and home life. DINTA’s efforts quickly met with an enthusiastic response, thus revealing many German employers’ growing interest in the “human factor” of production. Within a year of its founding, DINTA was training nearly forty engineers and foremen from Ruhr heavy-metal firms at its headquarters in Düsseldorf and had established twenty-four apprenticeship training workshops in other mining and metallurgical companies. DINTA published nearly twenty company newspapers. By the end of the decade, between 150 and 300 firms relied, at least in part, on DINTA for their apprentice training and more than fifty produced company newspapers with its help.¹³²

The most comprehensive treatments to date of DINTA have had trouble explaining the organization’s rapid success. Their accounts refer to its eclectic appeal, the tireless propagandizing of its leader Karl Arnhold, and, most centrally, its political resonance with anti-Marxist conservatism.¹³³

Such claims for the central role of politics in DINTA’s appeal can account for only part of the organization’s success and have overshadowed other aspects of its work. The motives of the DINTA men, after all, were not necessarily the same as the motives of the DINTA clients. In fact, considerable evidence suggests that firms were more interested in practical matters than in politics. Why, in the absence of direct benefits, should *individual* firms be interested enough in *national* political developments to invest considerable resources in the latter? Would firms not have been far more concerned with their own well being? Joan Campbell’s and Mary Nolan’s own evidence suggests that they were, or at least that DINTA leadership itself believed they were. Thus, Campbell suggests that Arnhold made “great efforts to obscure” DINTA’s political program and instead emphasized “rational considerations” and “the economic benefits to be derived from his educational innovations,” precisely in order to appeal to the employers and even to labor.¹³⁴ Indeed, before DINTA’s founding, German entrepreneurs “had proven insufficiently responsive” to the appeals of a future Arnhold aide that

they should concern themselves with the workers' well being for *philosophical-political* reasons. It was only later, when he appealed to the employers' self-interest, that he "got a hearing in industrial circles."¹³⁵ Given the firms' interest in DINTA's comprehensive, multi-year programs for training skilled workers, it seems doubtful that employers were not interested seriously in "what and how" the workers were taught, as Campbell implies. Apprentice training and education, according to Wolfgang Muth, was "the area on which the DINTA concentrated its main efforts" during the Weimar period.¹³⁶ Given German industry's new emphases in their production strategies, apprentice training and education were the most likely reasons for DINTA's success—even if not the sole *raison d'être* of its founding.

The overestimation of DINTA's political appeal has obscured not just its role in training skilled workers; more significantly for present purposes, it has kept scholarly attention focused on DINTA to the exclusion of two other organizations. DATSCH and, closely tied to the same, the Working Committee for Vocational Training, did not promote themselves as vigorously as Arnhold did DINTA. Yet in the long run, DATSCH and the Working Committee proved to be of far greater significance for the German variety of capitalism than DINTA.¹³⁷ The creation of the Working Committee, in particular, which only recently has begun to receive appropriate scholarly attention,¹³⁸ can be regarded as one of the decisive institutional steps in the creation of the modern German vocational training system. After the establishment of the Labor Administration and comprehensive vocational counseling earlier in the decade, this standardized system of vocational training formed the third basic strand in the German project to optimize the workforce.

When DATSCH was founded in 1908 under the auspices of the Association of German Engineers and the Association of German Machine-Building Organizations, it initially aspired to coordinate centrally the technical training at machine-building schools.¹³⁹ By 1911, however, it had already expanded its efforts to the training of skilled workers in the machine and iron industries. With the assistance of industrial giants such as Siemens, AEG, and MAN, DATSCH promulgated guidelines for the organization of apprenticeship training, the legal status of the apprentice, and the practical and theoretical training in the "mechanical industry."¹⁴⁰ Still, before the war, the emphasis remained on the theoretical side of training.¹⁴¹ The numerous affiliated industrial associations helped to disseminate widely these recommendations. After the war-induced interruption of its activities, DATSCH turned its attention increasingly to the content of practical training of skilled workers. Borrowing materials from leading companies, the DATSCH staff developed course plans for such central vocations as machinist, constructive machinist, prototype-carpenter, and former. Through its own publishing division, DATSCH distributed posters, slides, and looseleaf pages displaying the technical specifications and, in clear diagrams, the "what and how" of basic industrial procedures, such as soldering, milling, and drilling.¹⁴² After a lull in the early 1920s, DATSCH's sales to firms of these vocational teach-

ing materials nearly quadrupled between 1924 and 1931, jumping from 40,000 to 150,000 *Reichsmark*.¹⁴³

DATSCH's activities, especially after the war, in establishing standard training and work procedures for the most important industrial vocations prepared the ground for the founding in the summer of 1926 of the Working Committee for Vocational Training, which nonetheless represented a true watershed in the creation of the German vocational system. The establishment of the Working Committee not only by DATSCH, but with the backing of the National Association of German Industry and the Association of German Employers' Organizations, meant that the two most important industrial employer groups had committed themselves to improving and standardizing worker training and that they now had a forum dedicated exclusively to this task. When, in 1927, the leading handicrafts organizations joined the Working Committee, thus burying decades-old differences with industry over control of vocational training, all of the major employer groups were now engaged.¹⁴⁴

In addition to the participation of the most important economic interest groups, the sense of mission and the comprehensive mandate of the Working Committee distinguished it even from the earlier efforts of DATSCH. In the inaugural issue of the Working Committee's journal, *Technical Education*, which became the flagship of the movement, the chairmen of the new body, the major industrialists Ernst von Borsig and Gottlieb Lippart, argued for the central role of the worker in the production process:

In the widest circles it has gradually come to be recognized that the competitiveness of our industry depends not only on the technical and organizational perfecting of the production apparatus, but to no lesser degree on the best-possible use of the available human forces. Everywhere one recognizes that the most valuable good which Germany, robbed of so many natural resources, possesses is human labor power.

However, even more important was investing in the *development* of human capital:

It is not enough, though, that one uses most economically the people who are integrated into the production process; rather, it is above all necessary that the abilities of those who are to participate in the production process are raised to the maximum and developed in the most versatile way already before they enter the economic system.¹⁴⁵

The chairmen's distinction—between, on the one hand, distributing existing human resources and, on the other, cultivating new talents—succinctly captures the two approaches to optimizing the German workforce analyzed in earlier chapters.

The chairmen underscored the sweeping and systematic mandate of the Working Committee, “which will comprehensively treat all the great questions of the vocational training of an industrial worker which are suited for a centralized regulation.” In an article entitled “Our Tasks,” the director of the Working Committee, F. Schürholz, delineated more concretely the work ahead. The very first

task, the prerequisite for all further systematizing, was to “define” all vocations. Only on the basis of such a clarification could the substantive coordination of training be undertaken and vocational “profiles” created, which would describe (and prescribe) the relevant activities of each job and the apprenticeship training necessary in each of these according to the DATSCH courses. Perhaps most crucially, the qualifying exams, “which influence the quality of the training and determine the extent of the demands made of the testee,” needed to be made largely uniform throughout the country.¹⁴⁶

Though Schürholz proposed the standardization of training and testing in the context of a commentary on the draft of a law on vocational training, it soon became clear that German industry’s goals in this regard did not depend ultimately on legal measures. When the proposed law finally foundered in 1928, the Working Committee and DATSCH continued, and even accelerated, their work.¹⁴⁷ Over the following years, they turned out dozens of vocational profiles, training plans, and exams for the most important industrial vocations. The efforts from the mid 1920s by German industry, with the support of key government ministries, to systematize training procedures mark a decisive turning point in the formation of the overall German vocational system as it exists to this day.¹⁴⁸

For the other strand of the German vocational system—the vocational counseling movement, whose promoters in the Prussian Trade Ministry were determined not only to establish universal vocational counseling, but to encourage as many young men as possible to become skilled workers—German industry’s renewed commitment to the skilled worker had a significant impact. Most importantly, it facilitated vocational counseling’s dealings with industry. For in the second plenary meeting of the Working Committee, on 29 January 1926, it agreed “actively to support the work of the vocational counseling stations” and recommended that these offices and the industrial representatives cooperate locally.¹⁴⁹ As noted above, the endorsement by industry’s highest representatives greatly facilitated the work of the vocational offices, which now appreciatively acknowledged local employers’ enhanced interest in their services.¹⁵⁰ Thanks to industry’s rediscovery of the skilled worker, its earlier mistrust of the “bureaucratic” vocational counseling offices was mitigated and, from 1926 on, these offices operated in a significantly more hospitable environment. Their success in attracting young school-leavers reflected the new cooperation. Between 1924/25 and 1927/28, the number of visitors to vocational counseling rose from 307,000 to 438,000, an increase of more than 40 percent.¹⁵¹ As a savvy vocational counselor had noted, if the *Berufsberatung* offices controlled the apprenticeship positions—which they increasingly did—“the youths and their parents will follow.”

After the war, the government advocates of a program of skilled work faced daunting tasks, despite—indeed often because of—the establishment of a national Labor Administration. A whole new bureaucracy had to be created. Vocational counseling lacked trained personnel and relevant materials. In the absence of legal authority compelling job seekers and companies to use vocational counseling, the latter had to find other ways to achieve *Totalerfassung*. Above all, be-

cause it had become attached to the labor offices, vocational counseling suffered from a reputation for bureaucracy, mass operations, and indifference, and hence it lacked trust among important constituents, most importantly employers. In response, vocational counseling endeavored to improve its services and earn the trust of its constituents—by training counselors and developing knowledge of vocations; cultivating relations with schools; and employing applied psychology.

These steps, however, would not have been sufficient to boost significantly the number of skilled workers—especially given the failure of legislation on a national system of vocational training—if German industry itself had not clarified its own views of its workforce. Beginning in the middle of the decade, many German industrialists became less enamored of visions of centralized, rationalized control. Instead, when the fog of the postwar restrictions and inflation had lifted, they became more convinced that the skilled worker would be an irreplaceable part of a policy of flexible rationalization. The resulting cooperation to standardize vocational training and greater willingness to work with the vocational counseling offices set the stage—barring any unforeseen disruptions—for a significant expansion of Germany's skilled workforce.

Notes

1. GStA PK, I. HA, Rep. 120 Ministerium für Handel und Gewerbe, EI Spez., Fach 1, Nr. 61, vol. 3, protocol of meeting on 7 and 8 December 1921.
2. Thelen, *How Institutions*, 63–75; Wolf-Dietrich Greinert, *Das "Deutsche System" der Berufsausbildung: Geschichte, Organisation, Perspektiven* (Baden-Baden, 1995), 90–96.
3. *Reichsarbeitsblatt*, Nr. 21, 1926, 367–69. The total number of visitors, including older people, was higher: 251,000 and 307,000, respectively.
4. *Ibid.*, 369. Roughly, 60 percent of the visitors were male and 40 percent female. Reichsarbeitsverwaltung, *Berufsberatung, Berufsauslese, Berufsausbildung* (Berlin, 1926), 25. The figures are from 1922/1923.
5. BAB, R 3901/861, 1 February 1922.
6. GStA PK, I. HA Rep. 120 Ministerium für Handel und Gewerbe, EI Spez, Fach 1, Nr 61, vol. 3, 16 February 1922.
7. BAB, R3901/935, 29 January 1925.
8. See Uhlig, *Arbeit-ämlich*, 244–45, on Württemberg, which was typical of the whole country.
9. See numerous such reports in GStA PK, I HA Rep. 120 Ministerium für Handel und Gewerbe, EI Spez, Fach 1, Nr. 61, vol. 5.
10. See Führer, *Arbeitslosigkeit*, 119–251.
11. BAB, R 3901/935, 3 and 4 March 1924.
12. GStA PK, I. HA. Rep. 120 Ministerium für Handel und Gewerbe, E I Spez, Fach 1, Nr. 61, vol. 5, 8 January 1925.
13. GStA PK, I. HA. Rep. 120 Ministerium für Handel und Gewerbe, EI Spez., Fach 1, Nr. 61, Adhib 1, vol. 1, 22 January 1925.
14. GStA PK, I. HA. Rep. 120 Ministerium für Handel und Gewerbe, EI Spez., Fach 1, Nr. 61, vol. 5, 8 January 1925.
15. *Ibid.*, 8 January 1925.

16. The first activity report of the office in Offenbach, for example, begins with a category under this heading. See BAB, R3901/935, August 1923.
17. *Ibid.*, August 1923.
18. GStA PK, I. HA Rep. 120 Ministerium für Handel und Gewerbe, EI Spez., Fach 1, Nr. 61, adhib 3, vol. 1, 22 June 1921; see also, for example, the annual report of the labor office in Lübeck, in BAB, R 3901/870, 11 October 1924.
19. See, for example, the article on 15 November 1922 in the *Berliner Börsen-Courier*, “Berufsamt und Berufszwang,” excerpted by the Imperial Ministry of Economics, in BAB, R 3101/10277; also the article in *Der Rote Tag* from 3 June 1922, “Berufsvermittlung und Schülersteckbriefe des Berufsamtes der Stadt Berlin,” in BAB, R3901/934.
20. See, for example, the comment of the *Königsberg Hartungssche Zeitung* on 7 September 1922, that successful vocational counseling “[probably] will become a matter of life and death in a country in which the correct utilization of all economic possibilities, itself partly determined by a purposive distribution of workers, decides over being and not being.” The article “Berufsberatung und Wiederaufbau” is excerpted in BAB, R3901/934.
21. BAB, R3901/690, *Vossische Zeitung*, 3 January 1922.
22. BAB, R 3901/935, *Der Tag*, 23 May 1924.
23. This is how the provincial Vocational Office in Pomerania characterized the dissatisfactions and the desires of the parents; see GStA PK, I. HA Rep. 120 Ministerium für Handel und Gewerbe, EI Spez., Fach 1, Nr. 61, adhib 3, vol. 3, 2 August 1922.
24. BAB, R3901/936, “Bericht über die Entwicklung der Berufsberatung in der Zeit vom 1. April bis 1. Oktober 1925.”
25. See, for example, the report by the vocational counselor in Offenbach, who reported turnouts of between 80 and 90 percent of the parents, in BAB, R3901/935, August 1923. Also, see the urgent appeals by the Frankfurt office to local parents to consult with the former on their children’s future, in BAB, R3901/934, 1 August 1921.
26. BAB, R3901/935, August 1923.
27. See the article “Wer soll Berufsberatung treiben?” by Käthe Gäbel, in *Der Tag*, on 16 July 1924. In BAB, R3901/935.
28. GStA PK, I. HA Rep. 120 Ministerium für Handel und Gewerbe, EI Spez., Fach 1, Nr. 61, adhib 3, vol. 1, 22 June 1921.
29. The report of the Pomeranian Provincial Vocational Office to the Prussian Ministry of Trade, in *ibid.*, 2 August 1922.
30. See the complaints to this effect, in 1925, from the Imperial Labor Office to the Prussian Minister of Education, in BAB, R3901/936, 1925.
31. GStA PK, I. HA Rep. 120 Ministerium für Handel und Gewerbe, EI Spez., Fach 1, Nr. 61, adhib 3, vol. 1, 17 October 1919.
32. *Ibid.*, 17 October 1919, letter from the State Commercial Office to its superiors in the Ministry of Trade, 14 February 1920, and on 22 March 1920 from Trade to the Prussian Ministry of Education.
33. *Ibid.*, 26 February 1920.
34. Such complaints are legion. See, for example, BAB, R3901/934, 5 November 1920; *ibid.*, 31 January 1921; *ibid.*, 29 June 1922.
35. GStA PK, I. HA Rep. 120 Ministerium für Handel und Gewerbe, EI Spez., Fach 1, Nr. 61, adhib 3, vol. 1, 2 August 1922. In this report, the juxtaposition of increased demands on teachers in a supporting role and the lost ability to help students directly emerges as particularly galling to the teachers.
36. BAB, R3901/934, 29 June 1922.
37. BAB, R3901/934, annual report of the vocational office in Offenbach, August 1923.
38. GStA PK, I. HA Rep. 120 Ministerium für Handel und Gewerbe, EI Spez., Fach 1, Nr. 61, vol. 4, 9 December 1922.
39. BAB, R3901/934, report of the vocational office in Offenbach, August 1923.

40. BAB, R3901/870, 11 October 1924.
41. GStA PK, I. HA Rep. 120 Ministerium für Handel und Gewerbe, EI Spez, Fach 1, Nr. 61, vol. 3, protocol of meeting of Land Vocational Offices, 7/8 December 1921.
42. BAB, R3901/934, report of the vocational office in Offenbach, August 1923.
43. Thelen, *How Institutions*, 63–75; Greinert, *Das "Deutsche System,"* 90–96.
44. *Reichsarbeitsblatt*, Nr. 8, 1926, 133ff.
45. Reichsarbeitsverwaltung, *Berufsberatung*, 51.
46. BAB, R3901/687, brochure of the *Land* Office, 1 November 1919.
47. See, for example, the description of the course in Chemnitz, in BAB, R3901/934, November 1920, or that in the course in Frankfurt in June/July 1921, in *ibid.*, report on the Labor Administration's visit to Frankfurt, 15 August 1922.
48. GStA PK, I. HA, Rep. 120 Ministerium für Handel und Gewerbe, EI Spez., Fach 1, Nr. 61p, Ministry of Trade to the Labor Exchange Union in Magdeburg, 4 April 1920; see the numerous documents pertaining to the financial support of the Imperial Labor Office for the Seminar, in BAB, R3901/891. BAB, R3901/934, protocol of meeting of representatives of the Prussian Provincial Vocational Offices, 11 March 1921.
49. BAB, R3101/10277, letter of Imperial Labor Minister to Imperial Economics Minister containing the protocol of the November meeting, 30 December 1920.
50. The concerns pertained to more than just the training of the counselors, but also to vocational profiles (to be treated below) and other topics.
51. GStA PK, I. HA Rep. 120 Ministerium für Handel und Gewerbe, EI Spez, Fach 1, Nr. 61, vol. 3, letter of Provincial Vocational Office in Brandenburg to Land Labor Offices and Vocational Offices, 22 November 1921.
52. *Ibid.*, 22 November 1921.
53. BAB, R3101/10277, protocol of meeting in the Labor Office on vocational counseling on 3/4 November 1920, 30 December 1920.
54. See the protocol of the 26 April 1922 meeting in the Imperial Labor Office, in BAB, R3901/934, 26 April 1922.
55. See the article "Berufsberatung" in *Der Deutsche* from 30 June 1922, and the handwritten commentaries in the margin, in BAB, R3101/10277.
56. BAB, R3901/934, letter of the Labor Office to the Labor Ministry, 29 June 1922.
57. BAB, R3901/934, Letter from Reich Labor Office to the Imperial Labor Ministry, 29 June 1922.
58. *Ibid.*, 29 June 1922. According to the Land Vocational Office, Saxony-Anhalt, in its letter to the Imperial Labor Ministry, 31 January 1921.
59. See, for example the reports from Offenbach (BAB, R3901/935, August 1923); Harburg (BAB, R3901/935, 6 August 1923).
60. BAB, R3901/934, Letter from the Imperial Labor Office to the Reich Labor Ministry, 29 July 1922; also *ibid.*, Letter from the Vocational Office in Saxony-Anhalt to the Reich Labor Ministry, 31 January 1921.
61. *Ibid.*, protocol of Committee meeting on 9 December 1921, sent by Reich Labor Ministry to the Reich Labor Office on 10 December 1921 for evaluation.
62. *Ibid.*, for the case of Berlin, see the letter of the Labor Ministry to the Labor Office, 29 June 1922; for Silesia, see the letter of the Labor Office to the Prussian Trade Ministry, in GStA PK, I. HA., Rep. 120 Ministerium für Handel und Gewerbe, E I Spez., Fach 1, Nr. 61, adhib. 4, 24 February 1923.
63. GStA PK, I. HA., Rep. 120 Ministerium für Handel und Gewerbe, E I Spez., Fach 1, Nr. 61, adhib. 4, 24 February 1923.
64. On this and generally for a more detailed account of the role of applied psychology in workforce optimization projects, and for further references, see David Meskill, *Human Economies: Labor Administration, Vocational Training and Psychological Testing in Germany, 1914–1964* (Cambridge, 2003).

65. Friedrich Dorsch, *Geschichte und Probleme der angewandten Psychologie* (Bern, 1963), 85.
66. See, for example the comments by a representative of the Prussian Education Ministry at a meeting on 8 July 1920, in GStA PK, I. HA Rep. 120 Ministerium für Handel und Gewerbe, EI I Spez., Fach 1, Nr. 61, adhib 4; also, the letter of the Prussian Ministry for Popular Welfare to the President of the Prussian Parliament on 24 May 1922 in *ibid.*; also the letter of the President of the Labor Office to the State Labor Offices, on 4 July 1923, in BAB, R3901/893.
67. GStA PK, I. HA, Rep. 120 Ministerium für Handel und Gewerbe, EI Spez., Fach 1, Nr. 61, adhib 4, letter from the Office in the Rhine Province to the Trade Ministry, 12 January 1923.
68. *Ibid.*, letter from the Silesian Office to the Trade Ministry, 7 December 1922.
69. BAB, R 3901/935, report from Berufsamt Offenbach, August 1923.
70. BAB, R 3901/ 935, report of the vocational office in Offenbach, August 1923.
71. *Ibid.*, report of the vocational office in Breslau, 20 August 1923.
72. BAB, R 3901/935, 3 and 4 March 1924.
73. For several works in this vein, see Robert A. Brady, *The Rationalization Movement in German Industry: A Study in the Evolution of Economic Planning* (Berkeley, 1933); Georges Friedmann, *Industrial Society* (New York, 1955); Harry Braverman, *Labour and Monopoly Capital: the Degradation of Work in the Twentieth Century* (New York, 1974). In several cases, the authors' Marxian sympathies likely led them to view machinery as a substitute for—rather than as a complement to—labor power.
74. See Nolan, *Visions*, 3–57. See, also, Charles S. Maier's article, "Between Taylorism and Technocracy: European Ideologies and the vision of industrial productivity in the 1920s," in *The Journal of Contemporary History*, vol. 5, nr. 2 (1970): 27–61, which examines the ideological and political role of the vision of technical expertise replacing political dispute.
75. Nolan, *Visions*, 139–40. The number of jackhammers in use in the Ruhr coal region rose from 264 in 1913 to 44,993 by 1925 and to 70,145 by 1927.
76. Nolan, *Visions*, 140, on coal, and 144, on iron and steel, where she contradicts her earlier claim that suggestions to the same effect "fell on deaf ears" (*Visions*, 75); Homburg, *Rationalisierung*, 496–506, on the electrical giant Siemens; Freyberg, *Industrielle Rationalisierung*, 139–44, on the machine tool industry.
77. See Homburg, *Rationalisierung*, 451–71, for a detailed survey of Siemens' work on this technology.
78. Freyberg, *Industrielle Rationalisierung*, 83–96.
79. Freyberg, *Industrielle Rationalisierung*, 145, characterizes "the broad introduction of flow-work in the manufacturing industry" as "the central theme of the rationalization movement in Germany after 1925."
80. See Nolan, *Visions*, 30–57.
81. *Ibid.*
82. Harold James, *The German Slump: Politics and Economics 1924–1936* (Oxford, 1986), 148ff.; Freyberg, *Industrielle Rationalisierung*; Jürgen Böning, *Die Einführung von Fließbandarbeit in Deutschland bis 1933: Zur Geschichte einer Sozialinnovation*, part 1 (Hamburg, 1993), who concludes that by 1930, perhaps 80,000—or less than half a percent of all industrial workers—were engaged in flow- or assembly line work (Böning, 699).
83. Freyberg, *Industrielle Rationalisierung*, 50.
84. Schulz-Merlin, director of the business section of the Association of German Machine Making Organizations in 1926, quoted in *ibid.*, 147.
85. This is a major theme in the most influential book on the US challenge, *Das Wirtschaftliche Amerika* (Berlin, 1925), by Carl Köttgen, general-director of Siemens and vice-president of the National Productivity Board.
86. For the coal industry, see Nolan, *Visions*, 138. For iron and steel, see Thomas Welskopp, *Arbeit und Macht im Hüttenwerk: Arbeits- und industrielle Beziehungen in der deutschen und amerikanischen Eisen- und Stahlindustrie von den 1860er bis zu den 1930er Jahren* (Bonn, 1994), 121, 305, 478–519, who postulates a reskilling of the workforce beginning around 1900.

87. See Homburg's judgment that the "starkest characteristic of the rationalization measures [at Siemens] in the 1920s was their experimental character" (*Rationalisierung*, 526). Freyberg talks of a "learning process" at Siemens (*Industrielle Rationalisierung*, 16).
88. Freyberg, *Industrielle Rationalisierung*, 187–88.
89. Homburg, *Rationalisierung*, 526–27; Freyberg's and Stolle's studies (*Arbeiterpolitik im Betrieb: Frauen und Männer, Reformisten und Radikale, Fach- und Massenerbeiter bei Bayer, BASF, Bosch und in Solingen (1900–1933)* (Frankfurt, 1980)) of the mechanical industry and Bosch, respectively, come to very similar conclusions.
90. Freyberg, *Industrielle Rationalisierung*. Also, see Stolle, *Arbeiterpolitik*, 195.
91. Josef Mooser, *Arbeiterleben in Deutschland, 1900–1970: Klassenlagen, Kultur und Politik* (Frankfurt, 1984), 59.
92. *Ibid.*, 52–53.
93. The number of such workshops, which could be afforded only by the largest concerns, climbed from just 11 in 1912 to 39 in 1919, 67 in 1926 (plus 108 connected to the Imperial Railroad), and significantly more by the end of the decade. Wolfgang Muth, *Berufsausbildung in der Weimarer Republik* (Stuttgart, 1985), 336–37.
94. Homburg, *Rationalisierung*, 556.
95. *Ibid.*, 557.
96. Stolle, *Arbeiterpolitik*, 198–99.
97. Freyberg, *Industrielle Rationalisierung*, 231.
98. *Ibid.*, 99–105.
99. See chapter 2.
100. Freyberg, *Industrielle Rationalisierung*, 167–68.
101. Stolle, *Arbeiterpolitik*, 195.
102. *Ibid.*, 679.
103. *Arbeit und Beruf*, nr. 17, 10 September 1924, 329. Matschoss went on to warn against "exaggerations" in either direction.
104. *Ibid.*, 330.
105. *Arbeit und Beruf*, nr. 12, 25 June 1925, 279.
106. *Technische Erziehung*, nr. 1, January 1928, 1.
107. *Technische Erziehung*, nr. 6, June 1928, 55.
108. *Technische Erziehung*, nr. 1, August 1926, 1.
109. *Arbeit und Beruf*, nr. 9, 10 May 1926, 251.
110. *Technische Erziehung*, nr. 11, November 1927, 127.
111. *Arbeit und Beruf*, nr. 6, 25 March 1934, 1.
112. Herbert Studders, in *Technische Erziehung*, nr. 10, October 1932, 76.
113. See Homburg, *Rationalisierung*, 335–43, on the extent of the problem and on companies' concerns about the related costs. She reports on a study of the Berlin metal industry, which showed that while turnover had reached 50 percent annually in 1913, after the war, it increased, and in particular, after 1923, it rose "continually," reaching 150 percent annually by the summer of 1925. Also, see Freyberg, *Industrielle Rationalisierung*, 242.
114. Thelen, *How Institutions*, 68–70.
115. Chandler puts it succinctly: "For almost a decade after 1914 German industrialists simply could not plan ahead." Chandler, *Scale and Scope*, 503.
116. Günther Mai, "Arbeitsmarktregulierung oder Sozialpolitik? Die personelle Demobilmachung in Deutschland 1918 bis 1920/1924," in Feldman et al., *Die Anpassung*, 202–36, esp. 232.
117. Maier, *Recasting*, 482.
118. For a good assessment of the impact of US economic growth on German thinking in the 1920s, see Nolan, *Visions*, 58–82. As perhaps the most striking indicator of the scale of US growth, it can be noted that in 1925, the United States produced nearly 100 times as many automobiles as did German firms (3.5 million vs. fewer than 40,000) (Nolan, *Visions*, 37–38). In one of Germany's most dynamic industries, the electrical, its share of global production had

- fallen between 1913 and 1925 from 35 to 23 percent, while the US share had soared from 29 to 49 percent. (Freyberg, *Industrielle Rationalisierung*, 50).
119. See, for example, the opening comments at the National Productivity Board meeting on 21 June 1924 by the head of the German Association of Engineers, Conrad Matschoss, who explicitly contrasted US “Fordist” with German methods (as reported in *Arbeit und Beruf*, nr. 17, 10 September 1924: 329); or those of psychology professor Hans Rupp writing in the cover story of the January 1928 issue of *Technische Erziehung* (already partly cited above): “In rationalization of work, of the firm, of sales organization, other countries, especially America, are equal or, thanks to the far greater company capitalization, partly superior to us. In terms of the quality of the work and the workers, in contrast, we need fear no competition. However, other countries are already striving to catch up, and we must devote the greatest attention to the thorough and economic training [of young workers].”
 120. By framing I allude to the role of conceptually organized contexts in decision-making, as analyzed by Kahneman and Tversky. See their seminal article, Amos Tversky and Daniel Kahneman, “Judgment under Uncertainty: Heuristics and Biases,” in *Science*, 185 (1974): 1124–31. One might also speak of a *Gestalt*-switch or paradigm shift.
 121. The director of the Working Committee on Vocational Training, Schürholz, in *Technische Erziehung*, nr. 1, January 1929: 4.
 122. For a similar case, in which tremendous technological and organizational advances strengthened the tendency to view all problems as amenable to planning and calculation, see Martin van Creveld’s chapter on military thinking in the late nineteenth and early twentieth century “machine age,” in *Command in War*, 148–88.
 123. *Technische Erziehung*, nr. 1, August 1926: 1.
 124. Homburg, *Rationalisierung*, 627.
 125. Freyberg, *Industrielle Rationalisierung*, 225.
 126. Georg Schlesinger, *Psychotechnik und Betriebswissenschaft* (Leipzig, 1920), 92–93.
 127. Schürholz, in *Technische Erziehung*, nr. 1, August 1926: 1.
 128. *Deutsches Institut für technische Arbeitsschulung*.
 129. See, for example, Ronald M. Smelser, *Robert Ley, Hitler’s Labor Front Leader* (New York, 1988), 189–92; Rabinbach, *The Human Motor*, 284–88; Nolan, *Visions*, 179–205.
 130. Albin Gladin, “Berufliche Bildung in der deutschen Wirtschaft, 1918–1945,” in Pohl, *Berufsausbildung*, 62.
 131. In German, *Werksgemeinschaft*.
 132. Nolan, *Visions*, 187.
 133. *Ibid.*, 187–91; Joan Campbell, *Joy in Work, German Work: The National Debate, 1800–1945* (Princeton, 1989), 243–59.
 134. Campbell, *Joy in Work*, 251.
 135. *Ibid.*, 248, 250.
 136. Muth, *Berufsausbildung*, 357. My criticisms of previous interpretations of DINTA are not meant to discount the importance of its efforts to reach beyond worker training—to *Werkspolitik*, leadership in the factory, and the worker’s life outside the factory walls. However, my argument does suggest not only that worker-training was a significant aspect of the DINTA-program, but also that even the other approaches were geared primarily to developing motivated workers and not necessarily to broader, more political aims. In light of the tendentiousness of previous accounts, I would argue that the work of DINTA deserves a thorough reassessment, which we cannot provide here.
 137. Given this importance, it is striking how little has been written about these organizations.
 138. Thelen, *How Institutions*, 88–89; Hansen, *Caps and Gowns*, 596–97. In his capable survey of Weimar vocational training, Wolfgang Muth does devote five pages to the Working Committee. See Muth, *Berufsausbildung*, 375–79.
 139. See chapter 2.
 140. Muth, *Berufsausbildung*, 348–52.

141. *Technische Erziehung*, nr. 1, August 1926: 7.
142. For nice examples of these “teaching posters,” see *ibid.*
143. Muth, *Berufsausbildung*, 352.
144. The *Handwerk* organizations were the German Chamber of Handicrafts and Business (*Deutscher Handwerks-und Gewerbekammertag*) and the National Union of German Handicrafts (*Reichsverband des Deutschen Handwerks*). The reason for handicrafts’ newfound willingness to cooperate with industry, according to Muth (*Berufsausbildung*, 377), was the national government’s draft of a vocational training law that handicrafts, like industry, deemed unsatisfactory. Additionally, the industrial employers’ obvious determination to cooperate on vocational training may have suggested to handicrafts that compromise was now their best option.
145. *Technische Erziehung*, nr. 1, August 1926: 1.
146. *Ibid.*, 2–3.
147. See, for example, the report in the May 1928 edition of *Technische Erziehung* (45) summarizing the deliberations in the *Arbeitsausschuss*: “In the further committee meetings, especially of the steering committee, the wish was expressed to make the attempt for the time being, *irrespective of the conclusion of a vocational training law and of its final form* [emphasis added, DM], to reach agreement between industry and handicrafts on a regulation of the qualifying exams for apprentices.”
148. Mary Nolan’s lack of interest in the Working Committee and all that it meant for the future of German vocational training is a significant omission. Because of it, her characterization of the motives of German employers hardly can do justice to their concerns: “This plea to value men over machines was for some industrialists an excuse to avoid rationalization; for others it was a cover for intensified exploitation, or a key element in a program to create a new, more productive and politically conservative working class” (*Visions*, 74).
149. GStA PK, I. HA Rep. 120 Ministerium für Handel und Gewerbe, E I Spez., Fach 1, Nr. 61, vol. 6, protocol of the meeting on 29 January 1926.
150. BAB, R 3901/ 936, “Bericht über den Stand und die Entwicklung der Berufsberatung in der Zeit vom 1. November 1926 bis 30. April 1927,” 7: “These decisions by the leading organizations [of business], the reports suggest, have undoubtedly made work easier for the local offices.”
151. Figures from *Reichsarbeitsblatt*, nr. 21, 1926: 367–69, and Reichsanstalt für Arbeitsvermittlung und Arbeitslosenunterstützung, *Zehn Jahre Reichsanstalt für Arbeitsvermittlung und Arbeitslosenunterstützung* (Berlin, 1937), 39. These figures include older advice seekers; separate numbers on school-leavers visiting vocational counseling are not available.