

On the “Exceptions” in the Establishing Bureaucratic  
Employment System  
in the German-Prussian State Railway  
in the 19<sup>th</sup> Century

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Railway in the 19th Century  
- A Social-Historical Approach to the Employment of the Railway Civil Servants  
(*Staatseisenbahnbeamten*) 1840-1870

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Abstract: The aim of this paper is to investigate the employment relation of the civil servants (*Beamte*) in the Prussian State railway from 1840 to 1870, that is, in the period of the construction of the German-Prussian railway system. The suggestion by Jürgen Kocka about the relation between the “pre-modern” bureaucracy and the “modern” traffic sector in Germany deserves a through investigation. Therefore I try to investigate in detail the employment relation of, especially, the middle- and low-ranking civil servants in the Prussian State railways. The results of social-historical examination of the custom, the “exceptional” employment of the state railway civil servants, indicate that the traditional institutions of the employment in the Prussian bureaucracy could be accepted by her railway sector first with some adjustments of itself to the system that was more suitable to the introduction of the then-new technologies. The seeking of the “rational” solution to the institutional problems in the Prussian State railway required some frictions, not a short term, and the supplement from the outside of the traditional bureaucratic system.

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## 1. Introduction

The comparison between Germany and USA by Jürgen Kocka<sup>1</sup>, who is one of the most representatives of the concept of “*Industriebürokratie* (bureaucracy in industries)”<sup>2</sup>, has thrown new light on the predominance of bureaucratic tendencies in the German railway system in its industrialization. A considerable number of studies on the German (Prussian) railway history have shown, certainly, that uncommonly many civil servants and retired soldiers had taken part in the building and management (governance) of the railways from the beginning<sup>3</sup>. But those studies have considered that it merely indicated one characteristic of the economic sector that should be nationalized before long just as the mining that had been traditionally State-owned. The influence that the German States and governments in the 19<sup>th</sup> century brought to the development of the railway industry has been discussed mainly in the context of their economic policy and legal intervention<sup>4</sup>.

For many industrial sectors, in the meantime, the direct introduction of the State bureaucracy and the imitation of its organization have been thought much of with the study about the formation of industrial organization in the German speaking countries in its industrialization<sup>5</sup>. As for the railway industry, however, there have not been many studies from this viewpoint. As almost all of the German railways had been nationalized at the end of the 19<sup>th</sup> century, the introduction of the bureaucratic patterns into the German railway sector seemed to be self-evident. Kocka’s alternative approach was a break-through in this research area<sup>6</sup>.

Kocka concluded that the railway enterprises in the German speaking countries (being different from their counterparts in USA,) made use of the previous system of the German bureaucracy in order to solve the problems in the management of new-typed and relatively large-scaled companies<sup>7</sup>. The development of the German railway industry was, as Kocka acutely pointed out, influenced by the State bureaucratic patterns through many paths: secondment of the high-ranking civil servants to the director’s boards, dispatch of the technical experts to the constructions, participation of the States in the management and so on<sup>8</sup>. “For the economic sector that was stable and developing in the long run and in which the “commodity” and the technology would not change so rapidly,” he has said, “this (i.e. the

arrangement of civil servants - A.B.) was supposed to be not disadvantage.”<sup>9</sup> This argument, that is very truly as a bird-eyes view, accords with his widely accepted thesis that co-operation of some traditional (from a pre-industrialized society) organizations and principles was very effective for the development of an industrialized or capitalistic society<sup>10</sup>.

Kocka’s investigation has, however, a room of the more detailed analysis as he has intended, first of all, to frame a hypothesis to stimulate and activate the discussion about the management of German railways in the industrialization-age. The problems of Kocka’s investigation could be shown as follows:

First, with regard to the development of the railway management style in Germany of the 19<sup>th</sup> century, there is a necessity (and, in the meantime, possibility) of a more detailed investigation. The management style of the German railways before the whole nationalization (i.e. the establishment of the German Imperial Railway [*Reichsbahn*]) had not only the regional diversity of the dominant form (for example, the priority of the State-owned railways over the private ones in the southern German States (*Land*) and vice versa in early Prussia) but also the time development (i.e. the stages) on which Kocka’s argument isn’t based. In Prussia, in accordance with the alternation of the State railway policy, the dominant management style has changed during the decades of the 19<sup>th</sup> century from private railway dominance to the mixed system and then to nationalization<sup>11</sup>. As a result, it is not so clear in Kocka’s thesis *when and how* the German bureaucratic patterns were introduced into the railway with the background of the change of the quantitative and qualitative weight between the private railways and the State ones.

Concerning this question, Kocka has accurately pointed out the early railway nationalization at the State level and the close human connection between the State civil servants and those in the railway companies as an important channel of the transition of the bureaucratic patterns<sup>12</sup>. This idea seems to have no room to be doubted, if one takes account of the comparison with railway companies in the USA that did not have such an experience<sup>13</sup>. The State railway (*Staatsbahn*) was, however, run as a sector of the State office, that is, in the principle of State bureaucracy itself. Considering the stages of the management style of the railways in the German States, however, this assertion has to be confirmed before anything else in terms of the interaction between the State bureaucracy and the State-owned railway,

Second, it is necessary to consider the inner structure of the German bureaucracy. For example, one must take into account the difference between the high ranking officials (*Oberbeamte*) and middle- and low ranking ones (*Mittel-, Niederbeamte*) or between their counterparts in the railway sector. It is natural to expect that the embodiment and/or acceptance of the bureaucratic patterns differed from one work place and rank to another, the personnel in the railways has to be investigated as the central to the issue of influence of the bureaucratic patterns.

Works published in the 1990s’ investigate these problems to a certain extent.

In his recent study Volker Then<sup>14</sup> has pursued Kocka's idea and has further explored the management problems that the enterprises of the German railway had to solve. In his comparative research between German (Prussian) and English railway companies, Then has revealed that the "overemphasis of civil servant" (*Beamtenlastigkeit*<sup>15</sup>) in the German railway sector was true for the employees in the administrative positions rather than for managers or entrepreneurs, and that some technical expert knowledge was more in demand than some general bureaucratic organizational knowledge<sup>16</sup>. Then's argument, that the civil servants, who were mostly lawyers, helped the railway enterprises under the restriction of the German laws (and its law-abiding society) to manage their companies<sup>17</sup>, would be accepted by most people.

It leaves, however, the question again unanswered how the bureaucratic patterns as the prominent administrative means were introduced into the German railways at the level of the employees. Then has clearly suggested, just as Kocka, that the manpower's linkage with the government offices was the important channel through which the bureaucratic patterns were introduced into the railway sector<sup>18</sup>. Could the promotion of staff from government agencies, however, automatically give the German railway companies the bureaucratic character? Even if accepting Then's argument that the introduction of bureaucratic patterns were one of the result from the administrative decision of the managers in accord with the German social structure, it is necessary to examine the employees more closely, concerning the introduction of bureaucratic system<sup>19</sup>.

It should be added that Then's (and Kocka's) interest has been mainly focused on the German private railway companies. This view is perhaps a reaction (with a sufficient reason) against the traditional approach in the historical study of the German railway, which focused mostly on *the German State railway (Reichsbahn)*<sup>20</sup>. But it should be necessary to make a comparison with the existing bureaucracy (one of the governmental offices) in the German railway industry at that time, in order to identify "the influence of the tradition of German bureaucracy" or its "*Beamtenlastigkeit*" in the private railways.

Colleen A. Dunlavy, who has been inspired (, as Kocka was<sup>21</sup>,) by A. D. Chandler Jr.'s work and has directly followed his framework (the comparison between the US and other countries), has also investigated closely the participation of the Prussian government in the early railways. Her interest has approached at the level of not only legal and institutional intervention but also of the practices in the workplaces, for example, the loan of State Building officers (*Baubeamte*) as railway engineers<sup>22</sup>. Adding to this, the social group activity of the early railway engineers from the State offices in Prussia has been investigated<sup>23</sup>. These approaches to the aspects of employee relations contribute to solving the question of introduction of bureaucratic practices to the early railway companies.

The problem is, however, that her discussion has been mainly limited to the period of the early

railways (i.e. before 1850), that is, the time before the Prussian government gave up her abstinent railway policy. Dunlavy, then, had to conclude only almost *a priori*; “Over the long term, ( …… ) Prussian State proved better equipped to regulate the first big business.”<sup>24</sup>

My concern here is, therefore, to explore a little further into the bureaucratic character of the employment relation in the Prussian State railways of the 19th century.

The object of this research is the official authorized capability of employment (*Anstellungsfähigkeit*) of the members of the staff in the Prussian State railway. Concretely, I will make a social-historical analysis of the employment of the non-qualified persons in the Prussian official railway sector, that is, the mostly middle- and low-ranking staff who were able to gain employment in the government office without the authorization (ohne *Anstellungsfähigkeit als Beamte*).

The documents about the railway civil servants, that were from the Prussian Ministry for the Trade, Industry and the Public Works (*Preußisches Ministerium für Handel, Gewerbe und Öffentliche Arbeiten*; the Ministry of Trade) to the Prussian Privy Civil Cabinet (*Preußisches Geheimes Zivilkabinett*; the Royal Cabinet)<sup>25</sup>, showed many cases of the irregular employment of non-qualified persons as railway civil servant. Those records often provide the social historical information of these non-qualified employees; their birth-year, birthplace, social origins, work experiences, families, and so on. The analysis of this data illustrates a great diversity between the social positions and relations of the non-qualified employees and the qualified staff in the official railway. It is useful to compare this data with aspects of the qualified employees, such as the railway civil servants (technical experts, executives and so on). These could be found on the same series of official records and the remarks of the privies in those days.

The present study will demonstrate that the irregular employment of the non-qualified person (which was the “deviation” from the bureaucratic employment convention) was the completing equipment to introduce the necessary and useful humane resources in the State railway. The bureaucratic patterns had to be supplemented by some non-bureaucratic elements under the limitation of the social constraint from the Prussian military sector, that is, one of the typical bureaucratic (, in its discipline,) organization.

## 2. Institutional framework of the employment in the Prussian State railways

To start with, let us survey the legislation and organization-structure of the Prussian State railway with special emphasis on employment relations.

The official control of the Prussian railway sector was switched over from the 2<sup>nd</sup> department of the Ministry of Finance (*Finanzministerium*) to the Ministry of Trade on the 2<sup>nd</sup> of February 1849. The railway policy of the then Commerce Minister, August v.d. Heydt, was characterized, as was well known,

by the promotion of the nationalization of the railways. That is based on his conviction cultivated by his own experience as the railway contributory. Right after the minister's installation, v.d. Heydt launched out into the nationalization of the Berg-Mark Railway (BME) and the Lower Silesia Mark railway (*Niederschlesisch Markische Eisenbahn*, NME) in the basis of the business approval right of the State from the Railway Act of 1838<sup>26</sup>. From the construction of the Prussian Eastern Railway occurred the necessity of the legal framework of the personnel administration; "The general acts on the administration of the State railways and on the appointment of the necessary placemen (*Die Allgemeine Bestimmungen über die Verwaltung der Staatseisenbahnen und über die Anstellung der dabei erforderlichen Beamten*)" on the 15<sup>th</sup> of April 1850<sup>27</sup>. The elements of this law, which would be revised for the first time on the 14<sup>th</sup> of November 1867, were gathered as follows<sup>28</sup>:

- (1) the differentials between high ranking civil servants and middle- and low ranking ones in the earning, labor-conditions, promotion and so on; members of the board of directors of State railway (except some post which needs a kind of "technique") were promoted only from the high officials who had passed the State examination for the juristic services,
- (2) the three-phased promotion; a civil servant was appointed after the adoption on trial of one year and the employment under a five year contract, only when a budgetary accepted post fell vacant,
- (3) the priority of retired soldiers; by filling a vacancy of the middle- and low ranking civil servant, an invalid or a retired noncommissioned officer with the testimonial for maintenance in the civil service (*Civilversorgungsschein*) after a period of military service took precedence over the no qualified persons.

"The general acts" took over from the Prussian traditional form of appointing of the civil servants. Especially the priority of the retired soldier in the civil service was the characteristic guardian-welfare institution in Prussia. This came from the Swedish War (1715 – 1720)<sup>29</sup> and was maintained during the 19<sup>th</sup> century<sup>30</sup>. In 1853 the act concerning the transfer of the staff of the then nationalized private railways into the State railways was added: only a qualified person could be transferred<sup>31</sup>. In 1867 the cabinet-order clearly mentioned that all posts but the technique-related men should be ensured by the "military candidates (*Militair Anwärter*)", that is, the retired military man with the qualification and "at least a half of the low ranking office workers" should fulfill the positions. Those reinforced the regulation that was above mentioned as "(3)"<sup>32</sup>.

On the other hand, however, it can be said that the revision in 1867 clarified and limited the scope of the employment of the retired military men in the railway sector. Adding to this, one must take note that the revision needs about 5 years to take effect after a discussion in the government<sup>33</sup>. On the whole, the legal framework of the employment in the Prussian State railway succeeded the institutions and

customs of its traditional and pre-industrialized bureaucratic patterns: partly in the sense that the principle of employment was (at least formally) meritocracy and partly in the sense that the Prussian-specific militarism, which had been one of the creative forces of the State bureaucracy in the 18<sup>th</sup> century, was reflected strongly.

The early (on the 1850s) organizational structure of each State railway was based on those of the foregoing private railways; the relative small-sized and simple hierarchical ones. Each railway had a board of directors of 2-3 persons as the high decision-makers. Under that there were three departments (*Abteilung*) that was divided from the elements of the railway management, that is, one on the general management (*Allgemeine Verwaltung*), on the railroad management (*Bahnverwaltung*) and on the transport management (*Transportverwaltung*). These department division in the private railway companies had come not only from the needs of their organizational function but also from the account principle fixed by the Ministry of Finance from 1839. As the most important function of raising capital (=financing) belonged not to the director board as in the private railways but to the ministry proper, the member of the director board (the head office [*Hauptbüro*] of each State railway) took on rather the character of chief engineer and/or general manager.

Under the former worked the technical experts (department engineer [*Abteilungsingenieur*]) building master [*Baumeister*] building conductor [*Bauführer*] ) and the station staff (stationmaster [*Stationsvorsteher*] assistant stationmaster [*Stationsvorsteherassistent*] ). Under the latter worked the general management staff on the personnel affairs, legal problems and (compulsory) purchase of land, as central-cashier (*Hauptkassenrendant*), the comptroller (*Controleuer*), the secretary (*Sekrätär*) and so on. The management of the transport of the persons and goods and of the machine- and rolling stock was , on the other hand, under the business inspector (*Betriebsinspektor*) who was not necessarily a member of the director board<sup>34</sup>.

The size of the work force in the State railways (i.e.. the civil servants [*Beamte*] as permanent staff, the temporary employees [*Angestellte*] and the workers [*Arbeiter*] ) were relatively small. Most of the State railways had no more than 500 employees in the beginning. NME, which was a relatively big enterprise, had no less than 1,800 employee (not counting the day laborers) in 1847<sup>35</sup>. By the Prussian Eastern Railway (*Ostbahn*) that was under construction only about 200 civil servants and temporary employees worked in and around Danzig in the West-Prussian Province in 1853<sup>36</sup>. The number of the “budgetary accepted posts”, that seemed to be equal to the number of the staff including the temporary employees, in each Prussian State railways were at the end of the 1858 as follows; NME 2044, Ostbahn 1429, the Westfalia Eisenbahn (WEB) 698 and the Saar Railway 232<sup>37</sup>.

### 3. Results of the examinations

#### 3-A

The petitions concerning the State railway civil servants from the Prussian Ministry of Trade to the Royal Cabinet from 1845 to 1918 contain mainly the records on the recommendation for decorations, titles and special pays. The employment of the civil servants and temporary workers were usually the matters that were dealt with to the utmost in the Ministry of Trade after the “General Acts”, while the formal sovereignty of the appointment of the civil servant belonged, of course, to the Prussian king. But there were the cases founded that needed the special petition for a king’s approval of the “exception” from the “General Acts”, that is, the priority of the qualified persons by replenishing a vacant post<sup>38</sup>. Those “exceptional” employment cases were explained at the later time as follows:

“ These rules (of the priority of the invalids and retired noncommissioned officers - A.B.) brought about a very narrow limit in case of personnel replenishment. They limited the State railway management source of labor which - ,as have been easily expected, - one could not get sufficiently appropriate workers to the most of the subdivisions. On the occasion of personnel arrangement in the first time, already, it became clear that the extensive use of the arrangement possibility of the non-qualified persons, that should have been planned primary only when exceptional, was indispensable. While already during constructions a lot of military men, as far as it was possible, were employed, the lack of the person with the testimonial for maintenance in the civil service became always clear by the opening, so that the other men like ganger (*Schlachtmeister*) and skilled laborer who proved to be skilful and adroit had to be assigned to the lower-ranking civil servants. (.....) Also at the taking possession of the private railways to the management of the State the regulations about the employment entitlement were broken, as the “noticeable employees” by “the continuing duty-loyal service” in their posts were left as they were. The authorized capability of the employment in the State service, which was absent from them (.....), was made good by the deed of “ His Majesty’s mercy”. “<sup>39</sup>

This account indicated that the “exceptional” appointment of the railway civil servant had shown a limitation of the bureaucratic patterns in the employment system in the Prussian State railways.

The number of those employed in this way was, however, not great. The concrete number of the “exceptional” appointed civil servants in the State railways from the 1850s to the 1870s was only 76 (as **Table 1** shows). This size seems to explain why there has been no close examination on these “exceptions”<sup>40</sup>. The “budgetary accepted” posts (i.e. the civil servants and the temporary employees) in the State railways in 1858 amounted to 4,403<sup>41</sup> and the “exceptional” appointed civil servants (47 persons) from 1853 to 1858 accounted for only a little over 1 percent of those. While the placements increased about 4,400 in the State railways from 1858 to 1869, the 27 “exceptional” appointed civil servants

contributed to it only by about 0.6 percent<sup>42</sup>. The ratios to the civil servants - the regular members with *de jure* recognition from the king - could be a little higher. But only taking this into account does not show that these “exceptional” appointed civil servants in themselves were the evidence of a malfunction of the bureaucratic patterns of the employment in the Prussian State railway.

But a little closer examination on them and a comparison with the private railway in Prussia at the same period (in the early 1850s) is instructive. This leads us to raise the question: were those “exceptions” really “exceptional” and insignificant?

At first sight it will be noticed that the large proportion of the “exceptional” appointed civil servants (30 persons) worked in the railways since the 1840s (i.e. in the pre-nationalized or other private railways). Here, the relatively small personnel size of the early State railways must be noted. They had not belonged to the small and unimportant part of the each starting State railways, although their contribution to the personnel expansion after 1853 was of almost no importance.

The examination of the personnel construction of the foregoing private railways in Prussia illustrates a point that we must not ignore. In the Berlin-Stettin Railway (BSE), which was nationalized first in 1871, only 10 percent of the 274 employees who worked in and around Stettin in 1853 had been professional soldiers or officers before entering the railway company. This figure appeared too small if the regular employment from the military sector into the State railway of the same period was due to some imminent organizational necessity. The number of ex-militaristic persons was, certainly, not so small of ex-military. It ranked, certainly, next to that of “craftsman and mechanic” and of “laborer” (both 15 percents) and ranked over that of “clerical employee in the government offices” (8 percent) among the ratios of the pre-professions of the BSE employees of that district. But, on the other hands, the ratio of the employees who had been exempted from the military service reached about 40 percent<sup>43</sup>. Is there a reason to consider that the workforce in the NME and the WEB, the State railway that started as private companies, had a similar personal construction to the BSE’s before and/or after the State ownership?

One could therefore estimate that the formally introduced humane resources into the State railway, as stated, were not exceptional and insignificant on the basis of the personnel in the early State railways. With reference to the above, it should not be denied that a close examination of these “exceptional” cases would be useful in order to have an accurate grasp of the essence of the employment relation in the early State railways. The next section will cover the some findings from the data.

### 3-B

#### a. Temporal trend

The “exceptional” appointments were found since 1853 and they happened mainly in the 1850s

(59 cases). There were 15 “exceptional” cases in the 1860’s and only one case in the 1870’s. During the 1850s there were two peaks: in 1854 over 3 “exceptional” appointed persons in every railways (total 14 persons) were to be found and in 1859 total 12 persons. The former was five to six years after the establishment of the State railways, that was, after the period of the adoption of a trial of one year and the employment under a five year contract after the “General Acts”. On the other hand, the increase in 1859 came from both the selection of the employee who should stay behind as a State railway civil servant after the large-scale bridge-construction in the Eastern Railway and the “shortage of the humane power” in WEB<sup>44</sup>.

The month on which the king (the cabinet) approved most “exceptional” employment was April (total 16 cases). Following that, February (13 cases), August (10 cases), March (8 cases), May, June and October (each 6 cases). It seemed that the number of the employment approvals were concentrated in the first half of the calendar year, but here no seasonal trend could be found.

The necessary time for a request from the Commerce Minister to be accepted by the Royal Cabinet differed from the same day to 31 days, averaging 8.2 days.

Over the 20% of those were “exceptionally” appointed before the prescribed period (5 – 6 years for a temporary adoption). Among them the 2/3 were appointed by 1855. For those appointed by the State railway, embarking a railway career, the duration was averaging 7.5 year. Before 1855 the average was 6.4 year and the duration became longer as the year continued. Both of these facts suggest strongly that a large number of competent staff were needed in the beginning period of the Prussian State Railway.

The average age of the “exceptional” employees in entering the railway career was approximately 28.3 years old and by the appointment it was approximately 36.5 years old. The latter was approximately equal to the youngest age when one stepped on the regular employment course (the army working of more than 12 years and the temporary adoption of 5 - 6 years) . It is supposed from here that they were adopted as early as possible in the range when the consideration was given to the employment order having to do with an age structure.

## b. Ranks and posts

Many of the “exceptional” appointed railway civil servants were cashiers, comptrollers, secretaries, or station-expediters, that fell between the high-ranking management staffs and the nonclerical civil servants and workers. Let us now consider this from the point of view of the employee categorization after the necessary educational careers. After that categorization of the German railway employees in the 19<sup>th</sup> century which was pigeonholed by Engel, the nonclerical civil servant and worker, including fireman, pointsmen, porters and so on, and some low-ranking clerks belonged to “the first category”, that was a

group of posts to which “only the normal elementary education was necessary” with 121 – 195 Tharler as a yearly stipend in 1850. “The second category” was the stratum of the middle-ranking civil servants including stationmasters, managers (*Verwalter*), accountants and so on, who earned yearly 198 – 500 Tharler (averaging 365 Tharler) and had graduated from “the technical grammar school, high school (*Gymnasium*) or farming-, industrial- and commerce college”. The high-ranking management and administrative civil servants or the leading technical experts, who needed “an education with high grades in university or academy” and earned averaging 772 Tharler “the third category”, belonged to “the third category”<sup>45</sup>.

The 36 of the total 57 “exceptional” appointed railway civil servants whose posts were to be found belonged to “the second category” by the above definition, that is, the middle-ranking civil servant. The 9 employees who belonged to “the third category”, high-ranking civil servant by the standard of education grade, were seems to be added to those, as their salaries were on the same level as the middle-rankers which was over the level of around 300 Tharler, that is, of the skilled-craftsman whose food costs were not very high in relation to the total living cost<sup>46</sup>. Compared to these, the number of the “exceptional” appointed high-ranking civil servant (5 cases) was small just as that of the low-rankers (7 cases). Especially, only one technical officer (*Technischer Oberbeamte*) were found. It is safe to state that the “exceptional” appointment was intended for a middle-ranking civil servant that needed a certain expertise knowledge and skills of a clerical nature.

#### c. Lines

On the construction of the Eastern Railway, one of the large-scale Prussian State undertakings, the highest number of non-qualified employees was appointed as the “exceptional” railway civil servants. On the whole, there was a supply of the military men as labor power for railway construction in a remote corner of the country just as the Eastern Railway. One may notice that, however, in the railway as has been pointed out with its militaristic aim and it was considered a typical case of State-promoting railway construction in the Central- Europe in the 19<sup>th</sup> century, still the militaristic labor supply was not enough to fulfill the needs of the organization. It is important to keep in mind that in NME there were more “exceptional” appointments than in the WEB that had the largest number of the employees. Proportionally this difference indicated that the “exceptions” were intended not simply to take up the shortage of the humane resources that were acquainted formally after the “General Acts”.

#### d. Social origins and education

The data about their social origins was only limited. The fathers’ occupations were confirmed

by only 3 employees: a merchant (whose son was the Building secretary), a road-construction engineer (whose son was the railway engineer) and town- or village chief (whose son was secretary)<sup>47</sup>. There were only 3 direct descriptions of the household economy of the parents' house (that was in needy circumstances)<sup>48</sup>. But it is possible to make up for this lack of data by an examination on their educational careers. According to this, 7 employees out of the 21 employees whose educational careers were to an extent clear had graduated the high schools (*Gymnasium*) or left them without completion. The leavers of the elementary school, the advanced primary school and technical grammar school were totaled 6. On the other hand, the graduates of universities were totaled 2 and the graduates of academies including militaristic educational institutions were totaled 3. These graduates of universities had been obliged to give up their desirable first careers, as the documents mentioned, because of their parent's households<sup>49</sup>. A total of 7 employees had taken some qualifying examinations: 4 had taken the State examination for the license of the technical expert (i.e. the land surveyor, etc.)<sup>50</sup>, 2 had taken the ones for the license for a clerical worker in courthouse<sup>51</sup> and 1 had taken the state law examination for the probationary judicial officer<sup>52</sup>. There was found only one ex-one-year volunteer (*Einjährige*)<sup>53</sup>, who could only have come from a relatively rich parents' home. To sum up, the middle-and low strata were given considerable weight in the social origins of the "exceptional" employees.

#### e. Geographical removal

Here let us make a comparison among birth place, the place of the first job, the place in which he had been employed for the first time in the private or State railway and the place where he was appointed. This examination makes it at once clear that the strong co-relation with the birth places and the first job places: most of the future "exceptional" State railway employees moved in the same province (government district, *Regierungsbezirk*) when they got their first jobs. This indicated the geographical limits of the labor market for the clerical worker. The possible extension of the labor market by means of its structural transform for which the German railways prepared the technical and institutional conditions, that was asserted by F.Blaich<sup>54</sup>, was not seen in this. Many employees were from Westfalia and, next to that, Prussia. The inhabitants in the former province were to be employed in WEB and the men in the latter were to enter the Eastern Railway. The local inhabitants in the western provinces of Prussia tended to find their first job, to enter on the railway career and to be appointed as the railway civil servant. In the eastern provinces, on the other hand, there were more cases of the inter-province removal. It might be that that was due to the shape of the line network in the eastern provinces where the railways were constructed to center into Berlin. Only the 8 removals between east and west could be pointed out. One can fairly be certain that the labor supply in the Prussian State railways was regionally divided.

#### f. Career before the appointment

The work experiences before entering on the railway career had a clear pattern. Most of the “exceptional” employees had been in the clerical and/or accounting sections of local government offices: in the administrative offices 11 and in the judicial offices 11. To that it had to be added 6 employees who had worked under the technical civil servants. When 13 ex-noncommissioned officer who had retired before the fixed period of military service, that is, without the testimonial for maintenance in the civil service (*Civilversorgungsschein*). About 80 percent of the “exceptional” employees had been in or around the bureaucratic sectors including the military. At the same time, however, what has to be noticed was the rest of them, the employees who had no bureaucratic career, made it rather clear what the necessary capabilities of railway civil servant of those days were. The existence of the employees who had come from the commercial section should be given attention. Those were the 2 railway employees directly from the commercial section and the 3 ex-clerks in the regional government offices or chambers who had been merchants (*Kaufmann*). This is related to the fact that the Ministry of Trade sometimes wrote on the occasion of application approval “the necessity of the merchant negotiation in the railway practices”<sup>55</sup>. It is also confirmed that many of the ex-noncommissioned officers (both the “exceptional” and the qualified employees) had taken the employment with relation to the accounting in the army. In the State railways “the part of the military that was conversant with calculations and had the rational ability to consider”<sup>56</sup> was introduced.

45 percent of those “exceptional” appointed in the 1850s in the State railways except the Eastern Railway, that had no predecessor, had come from the private railway companies. In 1856, for example, 4 of total 6 non-qualified person who were “exceptionally” appointed in WEB had stayed in the preceding private company, Cologne Minden Thuringen Railway (CMT).

#### g. Subdivisions (**Table 2**)

In this section, we will observe the “exceptional” employment in order of the subdivisions in the State railway. When departmentalizing in this way, the largest number of “exceptional” employees (24 persons) were found to be in the railroad management department. This department took charge also of the railway construction, in which the labor force demand was especially high by the 1850s. Next to this, in the general management department 21 persons were employed and 13 were employed in the transport department. These numerical values, however, must be compared with the increase of all the numbers of the personnel in each subdivision. By seeing the rate of the “exceptional” employees in the subdivisions to the increase of the number of the general personnel at all railways of “Germany” during the 1850s in which

the “exceptional” appointment concentrated, we can establish one criterion for the weight of them. Here, one must pay attention to the fact that the following numerical values are only a most minimum value as the ones that show the possible quantitative contribution in the subdivisions in the Prussian State railways. (If it is possible to check them at the ratio with the personnel scale of the Prussian State railways and all the railways in “Germany”, the following percentage values become respectively equal to or more than 3 times.)

First of all, one must notice that the general management department was to be showed interest. The rate that the number of the “exceptional” employment accounted for the general personnel increase in this department was about 4%. This is a high figure, comparing to that by the railroad management (about 0.5%) and by the transport management (about 0.2%). The personnel who were assigned to the central cashier (7 persons), above all, accounted for about 10% of the whole in the section. In the superintendent section of the railroad management department the 2 “exceptional” appointed civil servants accounted for about 8% of the whole. In the central office of the general management the 6 “exceptional” employees‘ composed about 4%. In the other sections they accounted for a modest 0.2 –1.2%.

#### h. Cases of rejection of the “exceptional” employment

During the concerned observation period, 22 persons petitioned for the giving or re-giving of the appointment qualification directly to the Royal Cabinet and after the examination by the Ministry of Trade they were rejected.

Here it is important to note that they contained the 7 ex- railway civil servants who had lost the testimonial for maintenance in the civil service after a period of military service as punishment for the indiscretion on the job. Such indiscretions were, for example, the embezzlement of the materials such as coal and firewood by the stationmasters<sup>57</sup>, the drinking at work<sup>58</sup> and the bad work manner<sup>59</sup> and so on. These irradiate the technical difficulty of watching over the various materials that were widely scattered along with the lines and also watching over the morale of the staff.

At the same time, there were a few rejections on the ground that “the exception is admitted by the ‘General Acts’ only when the adoption of the one is authorized to be suitable for the public interest but he [ the person who petitioned - A.B. ] has no such a capability”<sup>60</sup>. These examples are included as they suggest that the principle of the meritocracy was taken at least *pro forma* when “exceptionally” employing.

#### 4 . Conclusive remarks

From the above examinations one can see that there was a great demand for clerical skills in the administration in the establishing Prussian State railway especially in the 1850s. This supposition is supported by the application of the Commerce Minister v.d. Heydt to the Royal Cabinet as follows:

“As a result of the opening of the State railway, the public office work of the railroad relation in my Ministry increased plainly so that the necessity of the reinforcement of the government office work personnel for an expedient secretary and calculator has occurred continuously.”<sup>61</sup>

Also in 1855 v.d. Heydt repeated negotiation with the Finance Minister, Karl v. Bodelschwingh, concerning the increase in pay of the junior clerks who could do the counsel of the technical relation office works in the State railways. Complaining about the lack of the placeman of the lower-level who “had technical knowledge” such as the drafting skill and the statistic processing, he demanded the Ministry of Finance to incorporate the increase in pay of such a railway civil servant into the following fiscal budget plan<sup>62</sup>.

The importance of the management skill that the middle- and low ranking railway civil servant should take was given supporting evidence also by the testimony of a classy official of the law and administration in those days. According to the memorandum by Franz Urlich<sup>63</sup>, who had entered the State railway career as an executive probationer at the end of the 1860’s (and later the Advanced Privy Cabinet Councilor in the Public Undertaking Ministry), the system for the advanced staff to gain skill about “the management problem which (wa)s peculiar to the railway industry”<sup>64</sup> was not established. The only way in which such advanced staff could gain skills was approximately voluntary OJT through the frequent change of his belonging subdivision<sup>65</sup>. On the other hand, the progress of the railway account system, one of the effectual measures for the railway management, was progressed since the 1850s even in Britain.

One may say, at least, that some feedback between the near part of the work scene and administration nucleus was in dispensable for the development of the management skill about the early State railway<sup>66</sup>. It should be considered that most of these skills accumulated on the job in the foregoing administrative field<sup>67</sup> and this was reflected in the distribution of the field of the previous jobs of the “exceptional” appointed employees. On this point, the supposition that the office work know-how in the Prussian bureaucracy was utilized about the railway is proper and can be supported by concrete evidence. It is rather improper to grasp this within the context of the Prussian “State bureaucracy”.

Judging from the above observation, the introduction of the management skills from the administrative sector was always regional, taking a path just as the selection in the railway construction scene and the adoption from the practice of the local authorities. It is clear that this partly came from the division of the labor market, that obstructed the realization of geographically large-scale plans, adjustment and management which was the original advantage of bureaucracy. But it also reflects that a lot of

know-how which was introduced from the government sector contained rather regional specifics just as commercial transaction in civilian life. In the case of exceptional adoption, “the knowledge on the district”(or “genaue Lokal- und Sachkentniss”)<sup>68</sup> and “the merchant negotiation” was often written as the basis, and this coincided with one aspect of the circumstances in the railway construction: to have knowledge of the regional price difference of the material which had to be bought in the case of railway construction was recognized to be the *causa sine qua non* of the railway engineer who ordered the construction work<sup>69</sup>.

The pure engineering technique concerning railway construction was most important in the beginning of the Prussian (and German) railways. It was reflected by the “excessive” wage of the leading railway technical experts in general in the German speaking countries<sup>70</sup>. In similar circumstances, in Prussia in the 1840s, also, in the government office sector before the State railway construction, special regard was paid for treatment of the technical civil servant who had railway relation technique. This treatment was, more concretely, special permission from the king about their shift/sending to private railways and return from those companies, establishment of the new posts, wage provision out of usual wage system and so on<sup>71</sup>. After the early tolerant policy had been changed in early 1845, *not* as Dunlavy has argued, the Prussian king continued to seek “to make state service more attractive”, not only “to restrict the conditions under which the state engineers could take positions with railroads”<sup>72</sup>.

One can point out the examples concerning Lentze, the Flood Prevention Works Inspector (*Wasserbauinspector*) who superintended the construction of the Bridge in Dirschau on the line of the Berlin-Königsberg Railway. From June 1845 to February 1846, for several times, the Railway Commission and the Ministry of Finance petitioned to the Royal Cabinet for his special pay rise. The authorities concerned feared, according to the petition, that many state engineers of ability who were not satisfied with their low wage compared with the ones that their ex-colleagues were (and they should have been) paid in the private railway companies<sup>73</sup>. In September 1845, the special pay rise above the normal pay system and the increase of posts were settled not for the top-class state engineers but for the lower-ranking Building Conductors (*Baukondukteur*) in order to have them stay<sup>74</sup>. These efforts came to pass due to the fact that the railway construction industry was conducted the scale of investment to which the conventional earthwork could never compare<sup>75</sup> and the weight of an engineering technical expert in “the necessity to bring the railway construction to finish as early as possible and moreover to make it as profitable as possible”<sup>76</sup> was, therefore, still great.

The solution to the problem of the technical expert supply was, however, given relatively early by the official technician education system in Prussia. There were several reforms of the curriculum from the end of the 1840s to the end of the 50s at the traditional construction civil servant training-up institution

(*Bau Akademie*) and the newly established engineering school (*Gewerbe Institut*)<sup>77</sup>. These clearly pushed down the wage-level of the railway technical experts through the systematization - spread and partly obsolescence - of the railway technique. One may say that this is evidence that the Prussian bureaucratic system had a promoting influence to the railway development.

But, such a system reform on the engineering labor power supply didn't immediately result in solving the problem of the monitoring for the activity of the technical expert. As long as it was incomplete for the administrator to monitor the construction and management of railway through the "bureaucratic" means, as Then has pointed out, the function of monitoring could not help but depend on staff on the work scene<sup>78</sup>. The Ministry of Trade had already recognized, however, that "the noncommissioned officers who erected immovably in front of the senior officer" (W. Sombardt) only did not bear task and responsibility. In order to cope with incompetence and the aging of the railway civil servant who had been from the military, the Ministry of Trade tried in 1852 the reinforcement of the personnel by means of appointment of the civil servants in the other authorities and of the practice employing new high school graduates, modeled after the employment in the private railway companies. But this ended in failure with the opposition of the Royal Cabinet<sup>79</sup>. It was in 1853, just after the giving-up of the reform according to the organizational demand, when the "exceptional" appointment in the State railways began.

"The shortage of personnel" which was often complained as basis of the petition for "exceptional" appointment in WEB showed the existence of problems concerning the staff disposition in the State railways. It seems natural to assume that there was no "shortage" of the latent supply of skilled labor in the Westfalia, the relatively economic developed region in the Kingdom of Prussia.

From these above examinations, one may point out the function of "exceptional" appointment in the Prussian State railways in the period of the "mixed system", from 1849-1857, under the Trade Minister v.d. Heydt. That was a device, which was used together with the temporal and non-qualified employees - the supply-source of them - , for introducing and stabilizing the necessary labor force at the establishing bureaucratic organization.

Here one has to notice that the Prussian military, the typical bureaucratic organization in its discipline, was clearly benefited from the State railways, but not conversely. The shortage of the civil servant post for the invalid and retired noncommissioned officer before the establishment of the State railway, to the beginning of the 1850s, was dissolved by the employing patterns of the State railways<sup>80</sup>. On the other hand, the introduction of the militaristic and bureaucratic ethos into the works in the State railways, which was in principle effective to regulate such a large scale organization, was not always of benefit to the administration: monitoring of the employees' activity in the workplace. More importantly, in the State railways, the bureaucratic employing principle of meritocracy that was immanent and ingrained

in the Prussian governmental sector was challenged by the principle of benefit and welfare that the military had brought to the other State sectors. Having not been dissolved in the early State railways, the problem of the militaristic involvement in the employment of the State railways continued till the period of the railway nationalization in the last half of the 1870s<sup>81</sup>.

From these aspects, the dynamics of the bureaucratic patterns in the Prussian State railways should be understood better not in the context of realization of the rational organizational principle that was equal to the efficiency in organizational function, but of the State bureaucratic power that put a strain on the society.

In conclusion of the examination in this article, one can say the existence and functioning of the bureaucratic patterns in the early Prussian State railways needed some complements of the elements out of the Prussian bureaucracy: the consistency from the private railway companies, regional economies, labor market mechanism or market-mindedness and so on.

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<sup>1</sup> Jürgen Kocka, “Eisenbahnverwaltung in der industriellen Revolution : Deutsch Amerikanische Vergleiche.”, *Historia Socialis et Oeconomica. Festschrift für W. Zorn zum 65. Geburtstag*, VSWG, Beiheft 84, Ed. H. Kellenbenz u. H. Pohl, Wiesbaden/Stuttgart 1987: pp.259-277.

<sup>2</sup> See,e.g., Jürgen Kocka, “Industriebürokratie und “neuer Mittelstand” im Kaiserreich.”, in *Angestellten in der deutschen Geschichte: 1850-1980: vom Privatbeamten zum angestellten Arbeitnehmer.*, Göttingen, 1981: pp.64 - 89;do., “Capitalism and Bureaucracy in German Industrialization before 1914”, in *Economic History Review*, vol.34,1981: pp.453-456.

<sup>3</sup> See,e.g.,Hans Mottek, *Wirtschaftsgeschichte Deutschlands. Ein Grundriss. Band* , von der Zeit der Französischen Revolution bis zur Zeit der Bismarckischen Reichsgründung, VEB Deutscher Verlag der Wissenschaften, Berlin,1966 ( translated by Takao Ohshima, “Doitu-keizai-shi:1789-1871 nen”,Tokyo,1980, p.125 ) .

<sup>4</sup> As a classical work written in English, that made the dominant image of the leading role of the (Prussian) state in the economic development including its railway development, see, W.O.Henderson, *The State and the Industrial Revolution in Prussia: 1740-1870*, Liverpool, 1958. The devaluation of the role of the German States in the early railroad development can be exemplified by a chapter in the epoch-making work of Rainer Fremdling ( *Eisenbahnen und deutsches Wirtschaftswachstum 1840-1879: Ein Beitrag zur Entwicklungstheorie und zur Theorie der Infrastruktur*, Dortmund, 1985<2>, pp.109-132). Recently, there has been a series of new investigations to move beyond a simple “either-or” framework, including Dieter Ziegler, *Eisenbahnen und Staat im Zeitalter der Industrialisierung. Die Eisenbahnpolitik der deutschen Staaten im Vergleich*, Stuttgart,1995 and James M. Brophy, *Capitalism, Politics, and*

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*Railroads in Prussia 1830-1870*, Columbus, 1998.

<sup>5</sup> As one of the representative of this view, Hans Urlich Wehler, *Das deutsche Kaiserreich 1871-1918*. Göttingen, 1973, p.54.

<sup>6</sup> Jürgen Kocka, “Eisenbahnverwaltung in der industriellen Revolution : Deutsch Amerikanische Vergleiche.”, *Historia Socialis et Oeconomica. Festschrift für W. Zorn zum 65. Geburtstag*, VSWG, Beiheft 84, Ed. H. Kellenbenz u. H. Pohl, Wiesbaden/Stuttgart 1987: pp.259-277.

<sup>7</sup> Kocka “Eisenbahnverwaltung”, pp.264 268.

<sup>8</sup> Kocka “Eisenbahnverwaltung”, p.277.

<sup>9</sup> Kocka “Eisenbahnverwaltung”, p.269.

<sup>10</sup> See, Jürgen Kocka, “Industriebürokratie und “neuer Mittelstand” im Kaiserreich.”, in *Angestellten in der deutschen Geschichte: 1850-1980: vom Privatbeamten zum angestellten Arbeitnehmer.*, Göttingen, 1981, do., “Capitalism and Bureaucracy in German Industrialization before 1914”, in *Economic History Review*, vol.34,1981.

<sup>11</sup> The time development of the dominant management style of the Prussian railways has been often based on the alternation of the State policy. With regard to the effect of the 1848/49 Revolution to the discontinuity of the railway policy, see, Josef Enkling, *Die Stellung des Staates zu den Privateneisenbahn in der Anfangszeit des preussischen Eisenbahnwesens (1830-1848)*, Kettwig,1935, p.74. With regard to the shift of weight of State- and private railways under the “mixed age”, see, Ziegler, *Eisenbahnen und Staat*, pp.45 - 92; Wolfgang Klee, *Preußische Eisenbahngeschichte*, Stuttgart: W.Kohlhammer, 1982. On the other hand, the time development described in Historische Kommission zu Berlin, *Eisenbahnen in Preußen*, 37 - 162 is based on the increase of length of the railroads (e.g., ”before 1845”, ”1846-1853”, ”1854-60”, and ”1861-70”).

<sup>12</sup> Kocka “Eisenbahnverwaltung”, pp.264 272.

<sup>13</sup> See, Alfred D.Chandler Jr, , *Scale and Scope: The Dynamics of Industrial Capitalism*, Cambridge, Mass.,:Belknap Press of Harvard University Press, 1990.

<sup>14</sup> Volker Then, *Eisenbahnen und Eisenbahnunternehmer in der Industriellen Revolution. Ein preußisch(deutsch) - englischer Vergleich 1830-1880*(Inaugural-Dissertation zur Erlangung des Doktorgrades der Philosophie am Fachbereich Geschichtswissenschaften der Freien Universität Berlin), Berlin, 1993; do., *Eisenbahnen und Eisenbahnunternehmer in der Industriellen Revolution. Ein preussisch/deutsch - englischer Vergleich*,Göttingen, 1997.

<sup>15</sup> See,e.g., M.M.v.Weber,*Die Schule des Eisenbahnwesens. Kurzer Abriß der Geschichte, Technik, Administration und Statistik der Eisenbahn*, Leipzig, 1857, p.23 (cit.in; Historische Kommission zu Berlin,

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*Eisenbahnen in Preussen*, p.55 ).

<sup>16</sup> Then ,*Eisenbahnen*(1997), pp.300-307, 335.

<sup>17</sup> Then, *Eisenbahnen*(1997), pp.335 336.

<sup>18</sup> Then, *Eisenbahnen*(1997), p.306.

<sup>19</sup> Then, *Eisenbahnen*(1997), pp.347 360(fn.251).

<sup>20</sup> See,e.g., Reichsverkehrsministerium(ed.), Hundert Jahre deutsche Eisenbahn: Jubiläumsschrift zum hundertjährigen Bestehen der deutschen Eisenbahnen, Leipzig, 1938,pp.15-78.

<sup>21</sup> Kocka “Eisenbahnverwaltung”, fn.7.

<sup>22</sup> Colleen Dunlavy ,*Politics and Industrialization: early Railroads in the United States and Prussia*, Princeton, 1994, pp.56 69.

<sup>23</sup> Dunlavy ,*Politics*, pp.202 234.

<sup>24</sup> Dunlavy ,*Politics*, p.255.

<sup>25</sup> Geheimes Staatsarchiv Berlin-Dahlem ( GStA ) , ehm. Bestände Merseburg, Rep.89 (2.2.1), Zivilkabinett,29 419- 452 Eisenbahnbeamte: (29423 - : Eisenbahnpersonal; 29449 - : Ordens- und Titelverleihungen im Bereich der preußischen Eisenbahnverwaltungen 1845-1918).

<sup>26</sup> About the railway policy of v.d. Heydt, see,e.g., Henderson, *State*, pp.169 189; Brophy ,*Capitalism*, pp.53 74.

<sup>27</sup> W.Haustein /B. Stumpf, *Hundert Jahre deutsche Eisenbahner, Die Geschichte eines Berufsstandes.*, Leipzig:Konkord-Verlag, 1935, p.180; Historische Kommission zu Berlin, *Eisenbahnen*, p.105.

<sup>28</sup> Haustein /Stumpf ,*Hundert Jahre*, pp.177 183.

<sup>29</sup> Isaacsohn, S., *Geschicte des Preußischen Beamteniums vom Anfang des 15. Jahrhunderts bis auf die Gegenwart*, , 1884(1962) , p.184 (cit.in; Yasutoshi Ueyama, *Doitsu-kanryo-sei Seiritsu-shi-ron* (The History of the Establishment of German Bureaucracy), Tokyo,1964, p.138).

<sup>30</sup> The cabinet-order of 10.11.1882 and the law of 25.03.1882 (See, Illing/Georg Kautz, *Handbuch für Preußische Verwaltungsbeamte in Dienste des Staates, der Kommunalverbände, der Korporationen und für Geschäftsleute* Berlin,1889, pp.88 108).

<sup>31</sup> The cabinet-order of 25.01.1853(See, GStA Berlin-Dahlem Rep.89 (2.2.1)Zivilkabinett 29419 , p.173).

<sup>32</sup> The cabinet-order of 20.06.1867(See, Haustein/Stumpf ,*Hundert Jahre*, p.124).

<sup>33</sup> Haustein/Stumpf ,*Hundert Jahre*, p.124.

<sup>34</sup> Then ,*Eisenbahnen* (1993), pp.514-522, 548-552.

<sup>35</sup> Then, *Eisenbahnen* (1993),pp.516-517.

<sup>36</sup> These included the lower-ranking civil servant, e.g., firemen (Heizer), poters (Porter). GStA Berlin-

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Dahlem, Rep.77 Abt. Innernministerium, Titel 260, Eisenbahnen, Beamte, Generalia, Nr.6, Das Verfahren gegen diejenigen Eisenbahnbeamten, welche demokratische und regierungsfeindlichen Gesinnungen an den Tag legen, Bd.2 , pp.121-129.

<sup>37</sup> GStA Berlin-Dahlem Rep.89 (2.2.1) Zivilkabinett 29420, p.197.

<sup>38</sup> The answer from the king (Friedrich-Wilhelm) to the trade minister's petition, allowing the railway-construction tender and ex-lieutenant von Steinkeller in Marienburg to gain the employment as a civil servant in the Eastern Railway, suggests an example of the fixed form of the approval of the "exceptional" employment in the Prussian State Railway(GStA Berlin-Dahlem Rep.89( 2.2.1 )Zivilkabinett 29 419, p.10).

<sup>39</sup> Haustein/Stumpf, *Hundert Jahre*, p.121.

<sup>40</sup> cf. Haustein/Stumpf, *Hundert Jahre*, pp.79 80,120 - 121; Dorothee Klinksiek, "150 Jahre Eisenbahner in Deutschland: Die Eisenbahnbediensten im 19. Jahrhundert" in *Zug der Zeit - Zeit der Züge: Die deutscher Eisenbahnen 1835-1985* ,Ed. Eisenbahnjahr Ausstellungsgesellschaft mbH, Berlin:Siedler 1985 :pp.258 271.

<sup>41</sup> GStA Berlin-Dahlem Rep.89 (2.2.1) Zivilkabinett 29420, p.197. The ratio of civil servants to the "budgetary accepted" posts seemed to be less 40% (Haustein /Stumpf ,*Hundert Jahre*, Anlage 1( ),p.426).

<sup>42</sup> Engel,[ Ernst]. "Der Preis der Arbeit bei den deutschen Eisenbahn in den Jahren 1850, 1859 und 1869.", in *Zeitschrift des Königlich Preußischen Statistischen Bureaus*, 14-1 (1874), p.123.

<sup>43</sup> GStA Berlin-Dahlem,Rep.77 Abt. Innernministerium, Titel 260, Eisenbahnen, Beamte, Generalia, Nr.6,Bd.1 Das Verfahren gegen diejenigen Eisenbahnbeamten, welche demokratische und regierungsfeindlichen Gesinnungen an den Tag legen, pp.180-200.

<sup>44</sup> Table 1, no.50 ~ 53 ( GStA Berlin-Dahlem, Rep.89(2.2.1) 29420, pp.136 140 ) .

<sup>45</sup> Engel , "Preis der Arbeit", pp.112 113.

<sup>46</sup> GStA Berlin-Dahlem, Rep.109,3641:Lage und Verhältnisse der Arbeiter bei den gewerblichen Etablissements der Seehandlung, p.46 (cit. in: Osamu Kawagoe, *Berlin, Ohto-no-Kindai: Syoki-Kogyouka, 1848nen-Kakumei (Berlin: the Modern Times in the Capital of the Kingdom. Early Industrialization and the Revolution in 1848)*, Kyoto, 1988, pp.38-40).

<sup>47</sup> Table 1, no.9; 27; 45(GStA Berlin-Dahlem, Rep.89(2.2.1) 29419,p.66; p.153, 29420, p.44).

<sup>48</sup> Table 1, no.7; 8; 30 ( GStA Berlin-Dahlem, Rep.89(2.2.1) 29419, p.45; p.60; p.227 ) .

<sup>49</sup> Table 1, no.68 ( GStA Berlin-Dahlem, Rep.89(2.2.1) 29421, pp.130 131 ) .

<sup>50</sup> Table 1, no.13;14;16;76 ( GStA Berlin-Dahlem, Rep.89(2.2.1) 29419, pp.82 84; pp.85 86; pp.98 99; 29422, pp.117 119 ) .

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<sup>51</sup> Table 1, no.12; 66 ( GStA Berlin-Dahlem, Rep.89(2.2.1) 29419, pp.80 – 81; 29421, pp.101 – 102 ) .

<sup>52</sup> Table 1, no.68 ( GStA Berlin-Dahlem, Rep.89(2.2.1) 29421, pp.129 – 131 ) .

<sup>53</sup> Table 1, no.14 ( GStA Berlin-Dahlem, Rep.89 ( 2.2.1 ) 29419, pp.85 – 86 ) .

<sup>54</sup> Fritz Blaich., “Der Einfluß der Eisenbahnpolitik auf die Struktur der Arbeitsmärkte im Zeitalter der Industrialisierung”, in: *Wirtschaftspolitik und Arbeitsmarkt: Bericht über die 4. Arbeitstagung der Gesellschaft für Sozial- und Wirtschaftsgeschichte in Wien am 14. und 15. April 1971*, Ed. Kellenbenz, Hermann München: R.Ordenbourg Verlag, 1974, p.103.

<sup>55</sup> Table 1, no.24;25 ( GStA Berlin-Dahlem, Rep.89 ( 2.2.1 ) 29419, pp.139 – 140 ) . See, Then, *Eisenbahnen*(1993), pp.548-549.

<sup>56</sup> Kiyoshi Suekawa, *Kindai-doitsu no Keisei: “Tokuyuu no Michi” no Kiten* (The Formation of Modern Germany: the Starting-point of the “Sonderweg”), Kyoto, 1996, p.59.

<sup>57</sup> GStA Berlin-Dahlem, Rep.89(2.2.1) 29421, p.70.

<sup>58</sup> GStA Berlin-Dahlem, Rep.89(2.2.1) 29421, p.64.

<sup>59</sup> GStA Berlin-Dahlem, Rep.89(2.2.1) 29420, p.207.

<sup>60</sup> GStA Berlin-Dahlem, Rep.89(2.2.1) 29421, p.211; 29419, p.49; 29421 , p.222 .

<sup>61</sup> GStA Berlin-Dahlem, Rep.89(2.2.1) 29419, p.76.

<sup>62</sup> The negotiations on the increase in pay of the junior clerks in the State railways between the Finance Minister Karl von Bodelschwingh and the Trade Minister v.d.Heydt continued from the 16<sup>th</sup> June to the 27<sup>th</sup> November of 1855(GStA Berlin-Dahlem Akten des Ministeriums für Handel, Gewerbe und öffentliche Arbeit, 93E , VI Bauabtheilung, no.2954, N.page).

<sup>63</sup> Franz Ulrich, *Die Ausbildung der höheren Verwaltungsbeamten in Preußen und ihre Stellung in der Staatseisenbahnverwaltung*. Berlin:Verlag von Julius Springer, 1893.

<sup>64</sup> Urlich, *Ausbildung*, pp.42 – 43.

<sup>65</sup> Urlich, *Ausbildung*, pp.6-7.

<sup>66</sup> Then, *Eisenbahnen* (1997),pp.353-354.

<sup>67</sup> Then, *Eisenbahnen* (1997), pp.306 – 307.

<sup>68</sup> See, e.g., Table 1, no.54; 59 ( GStA Berlin-Dahlem, Rep.89(2.2.1) 29421 , pp.154,189 ) .

<sup>69</sup> Engelhardt, “Betrachtungen über den Eisenbahnbau” in: *Eisenbahn Zeitung* 24.Aug.;31.Aug.;7.Sep. 1845:pp.288-89; 295-297;303-306, p.288.

<sup>70</sup> See. e.g., Engel, “Preis der Arbeit” , p.113 ; Wortmann, *Eisenbahnbauarbeiter* , pp.63 - 74.

<sup>71</sup> See, e.g., GStA Berlin-Dahlem, Rep.89(2.2.1) 29453, pp.11 – 14;18 – 19;27 – 29 ; 29524, pp.22 – 38.

<sup>72</sup> Dunlavy, *Politics* ,p.68 (fn.55).

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<sup>73</sup> GStA Rep.89 ( 2.2.1 ) 29453: Bildung und Personal einer Kommission für den Bau der Eisenbahn von Berlin nach Königsberg i. Pr. 1845-1859, pp.11 - 14, 18 - 19, 27 - 29.

<sup>74</sup> GStA Rep.89 ( 2.2.1 ) 29418: Kommission für Eisenbahnangelegenheiten und deren Personal Errichtung eines besonderen Eisenbahnbüros beim Finanzministerium 1837-1851, pp.22 - 24.

<sup>75</sup> Dunlavy, *Politics*, p.203.

<sup>76</sup> The proposal by the Finance Minister Flottwell of the 27<sup>th</sup> October 1844(cit., in: GStA Berlin-Dahlem, Rep.89(2.2.1) 29524, Beschäftigung von Baubeamten des Staats bei der Anlage von Eisenbahnen 1837-52, pp. 18 - 22); Dunlavy, *Politics*, p.68.

<sup>77</sup> See, e.g., Peter Lundgreen, Techniker in Preußen während der Frühen Industrialisierung. Ausbildung und Berufsfeld einer entstehenden sozialen Gruppe. Berlin:Colloquium Verlag, 1975; L. U. Scholl, Ingenieure in der Frühindustrialisierung. Staatliche und private Techniker im Königreich Hannover und an der Ruhr (1815 - 1873). Göttingen:Vandenhoek & Ruprecht, 1978; do., "Der Ingenieur in Ausbildung, Beruf und Gesellschaft: 1856 bis 1881" in *Technik, Ingenieure und Gesellschaft: Geschichte des Vereins Deutscher Ingenieure 1856 - 1981*,Ed. Ludwig, Karl-Heinz Düsseldorf: VDI-Verlag, 1981: pp.1 - 66; Wolfgang König, "Die historische Entwicklung des Beamtenstums und der Berufsgruppe der Ingenieure.", in *Ingenieure im Oeffentlichen Dienst: Emprische Analyse zur Laufbahnreform*. Ed. Weber, Jacob., Düsseldorf: VDI-Verlag, 1982: pp.3-26; do., "Technical education and industrial performance in Germany: a triumph of heterogeneity.", in *Education , Technology and Industrial Performance in Europe, 1850 – 1939*. Ed . Fox, Robert, and Anna Guagini Cambridge: Cambridge UP, 1993: pp.65-87.

<sup>78</sup> Then, *Eisenbahnen* (1997),pp.338-339.

<sup>79</sup> Haustein/Stumpf, *Hundert Jahre*, pp.122 - 123.

<sup>80</sup> Haustein/Stumpf, *Hundert Jahre*, pp.4, 13. On the case of a retired noncommissioned officer and copyist in the Headquarter (*Unteroffizier und Commandantur-Schreiber* ) Leitholdt, who had spend four years(from 1845 to 1849) to get the job in the office even with the testimonial for maintenance in the civil service, see, GStA Berlin-Dahlem, Rep.93E, Personalia,4106.

<sup>81</sup> See, Anlagen zu den Stenographischen Berichten über die Verhandlungen des Hauses der Abgeordneten während der 3.Session der 13.Legistatur: Periode 1878-79, p.920.

&lt;Table 1&gt;

The "exceptional" employees in the Prussian State railways: their personal data

No.	Name Family-	Birth Year	Place	Education School	First job Year	Job
1	Neumann	Eduard	1826			civil servant
2	Reinen	Hermann				
3	v.Steinkeller					military
4	Reimer	Carl			1835	civil servant
5	Kaulfuhs	Leopold	1809/10		1837/8	mayor
6	Fuchs	W.L.	1824	Wf-ar	1838	civil servant, military
7	Bannenberg	J.G.	1825	Wf-mi	Gymnasium retired	by lawyer
8	Litdke	H.G.	1821	Rh		in the court
9	Stegmann	J.S.	1811	Pos	1832	in the court
10	Richter	Ludwig	1831/32	Pr-ma		military, agriculture
11	Brocse	Gustav	1826/27			civil servant
12	Schlitte	J.C.Ch.				in the court
13	Woycke	G.T.W	1817/18	Pr-ma	high elementary school	by building officer
14	Krechel	P.A.	1824		Gymnasium, building art school	
15	Rhode	Robert	1814	Pom-st		1841 by lawyer
16	Herrmann	F.X.	1818	Rh-kb	high elementary schoo	1833 by building officer
17	Ruthe	Albert	1821/22	Br-Brln	industrial art academy	1844 in TEB
18	Fennemann	A.F.	1802			
19	Kaufmann	K.W.F.	1819	Sch-brl		
20	Seidenbinger	J.W.	1817/18	Sa-mr		1840 military
21	Wagner	Johan	1819/20			1840 military
22	Fabricius	C.F.				1832/33 military
23	Wieler	D.	1803	Pos		1848? military
24	Herring		1828/29			commerce
25	Schmidt		1823			private secretary
26	Perrin					
27	Schwarz	Georg	1811	Wf-ar	building academy	by his father
28	Tietz	F.W.				1833 military
29	Beucken	Ludwig	1817	Rh-Aa	artillery school	1833 military
30	Noeggerath	A.W.	1832	Wf-ar		1846/47 civil servant
31	Allius	Reinhold				
32	Jehn	Ferdinand	1807	Wf-ar	Gymnasium	1823 factory, in the court
33	Schulter	August	1821	Wf-mi	Gymnasium	1844 in the court
34	Hohgräfe	Wilhelm	1826	Rh-ar	retired	1843 civil servant
35	Götte	Barthold	1824	Wf-ar	Gymnasium	1849 civil servant
36	Garken	Franz	1813	Wf-ar	Rectoratschule	1829 by lawyer
37	Puscha	O.M.	1810	Pr-kon	Gymanasium	by lawyer
38	v.Schkopp	Hermann	1823	Pr-ptdm	Gymanasium, cadet	1841 military, civil servant
39	Witge	J.C.G.		Pr-ptdm		
40	Linnarz	B.H.	1820	Rh-ko	university	commerce, in the court
41	Wergien	F.G.	1828/29	Pom-st		
42	Schroeter	Th.J.W.	1819/20	Sch-brl		
43	Schur	Friedrich	1818	Pr-fao		miller, military
44	Kuphal	Eduard	1822/23		"good educated"	commerce, by lawyer
45	Braun		1820/21	Pos-br	Gymnasium	1841 in the court
46	Widel	Heinrich				
47	Matthey	Friedrich				
48	Günter	H.H.				
49	Stracke	Anton	1832	Wf-ar	elementary school	1846 civil servant
50	Goebel	Adolph	1819/20			1845 by building officer
51	Eckstein	Wilhelm	1815/16			in the court
52	Ahrend	O.A.B.	1824.25			military
53	Kummer	Gustav	1819/1820			by building officer
54	Heldt	Friedrich	1825/26			
55	Hartmann	Jelins				
56	Milsch	J.G.			1830's	by builsing officer

57 Schröder	Herrmann					
58 Kückenhof	Friedrich					
59 Francios	Julius	1819	Br-Brln		1846	commerce
60 Xaber						
61 Wickelmann	Eduard					
62 Rickmann	K.F.G.	1819	Pom-st	business school		by lawyer
63 Rumpf	Bernhard	1819				by lawyer, civil servant
64 Neckenbürger	A.H.	1822	Wf-ar		1845	military
65 Mollenhauser	J.A.	1819	Wf-mi		1835	civil servant
66 Kuntz	Theodor	1822	Pr-ptdm		1842	in the court, civil serv
67 Budde	Friedrich					
68 Hansel	Carl	1835	Pr-ko	university	1858	Referendar
69 Arlt	Friedrich					military
70 Heyne	Karl			"good educated"		commerce, civil servar
71 Schmidt						wall coating master
72 Pötter	C.A.					
73 Linz	Carl	1833/34				
74 Strack	J.H.	1831/32				
75 Zaier	Georg				1848	military, civil servant
76 Baldamus	Hugo	1842	Wf-mi	business school, building art school		

Source: GStA Berlin-Dahlem, Rep.89(2.2.1) 29419 - 29422, 29424

Note:

1. Blank shows the lack of the data.
2. The name of the line with "( )\*" shows that it was not state-owned at that time.

Place	First job in the Pruss. State railway					Appointment as the Railway civil		
	Year	Line	Place	Position		Year	Place	Position
Pos-br	1852	Ost	Pos-br			1853	Pos-br	expediter
	1848	WEB	Wf			1853	Wf	central cashier
	1852	Ost	Pr-dz	tender		1853		
Pr	1851	Ost	Pr-kon	land-surveyer		1853		
Pom-kon	1849	Ost	Pos-br	registrar		1853		construction clerk
	1851	WEB		calculator		1853		
Wf-mi	1851	WEB	Wf-mi	clerk helper		1853		
(Rh)	1844	KME	Rh/Wf	luggage-expediter		1854	Rh-Aa	station master
Pos	1848	Ost		luggage-expediter		1854	Pr-dz	calculator assistant
Pr-ma	1849	Ost	Pos-ma			1854	Pos-br	construction clerk
Pom-st	1850	Ost		construction clerk		1854		business inspector
Wf-ar	1846/47	KME	Rh-ko			1854	Br-Brln	calculator, expediter
	1846	Ost	Pos-br			1854	Pos-br	land-surveyer
	1846	Saar	Rh-tr	foreman		1854	Rh-tr	station master
Br-Brln	1847	NME	Br-Brln	factory clerk		1854	Br-Brln	factory clerk
	1846	Saar	Rh	section engineer		1854		technical assistant
Halle?	1848	Ost		tender of construction		1854		calculator in the techr
		NME		senior fuel man		1854	Br-Brln	chief of coal bunker
	1844	NME		by operating cashier		1854	Br-Brln	luggage-expediter
	1842	NME	Brln-FaM	tender of ways		1854	Wf-mi	maintenance officer (in
	1850	Saar,ADE	Rh			1854	Rh	(in WEB)
	1846	Ost	Pr			1855	Pr-dz	station staff
		NME		land-surveyer		1855		cashier
	1855	NME		assistant bookkeeper		1855		assistant cashier
Br-Ptsdm	1853	NME		assistant bookkeeper		1855		assistant cashier
		BME	Wf	goods clerk		1855	Pr/Br	senior goods manager (
	1839	REB,KME	Rh	station engineer		1855	Rh-dus/Aa	station master (in ADR
	1844	NME		goods clerk		1855	Wf	maintenance officer (in
	1844	KME,BME	Rh,Wf			1855	Pr-dz	2. station master (in O
Wf-ar	1849	WEB	Wf	assistant cashier		1856	Wf-mu	cashier clerk
	1851	WEB	Wf			1856		office assistant
	1846	CMT	Wf	construction clerk		1856	Wf-mi	master of swing bolster
Wf-mi	1845	CMT	Wf	clerk helper		1856		clerk assistant(in WEB)
	1848	CMT	Wf			1856		calculator
	1847	CMT	Wf			1856		calculator assistant
Wf-ar	1841	(WEB)*	Wf	construction clerk		1857	Wf	section accounting offi
	1852	WEB	Wf	clerk		1857		cashier
	1846	CMT	Wf	(clerk)		1857	Wf	assistant of the central
	1851/52	Ost		calculator		1857	Br	central cashier
Rh-ko	1852	kgl.EBD	Pom-st	assistant clerk		1857	Pos-Br	office manager(in Ost)
	1853	Ost	Pos-br	clerk by a building master		1857	Pos/Pom	factory clerk
	1852	Ost				1857		telegraph inspector
	1842	NME	Pr-fao	foreman		1857	Pr-fao	station assistant
	1853	Ost	Pr-dz	comptroller assistant		1858	Pos-br	factory caluculator
Pos-br	1851	Ost	Pos	registrar		1858	Pos	registrar
	1848?	Ost		(in a station)		1858	Pos-br	
	1855	NME				1858	Sch-brl	pointer
		Ost	Pr-ko			1858	Pos?	station expediter
Wf-ar	1854	WEB	Wf	central cashier assistant		1859	Wf	cashier clerk
	1850	Ost	Pr-dz	tender of construction		1859		construction clerk
Pr-dz	1850	Ost	Pr-dz	construction clerk		1859		
?	1851	Ost	Pr-dz	material clerk		1859		
Pr-dz	1851	Ost	Pr-dz	tender of construction		1859		
		Ost		porter		1859	Pos-br	soil master
		KME	Rh	1.assistant of senior cargo inspect		1859	Wf	senior goods manager (
	1849	WEB	Wf	chief laborer		1859		

	1849	WEB	Wf	registrar	1859	Wf	construction clerk
	1849	WEB	Wf	assistant clerk	1859	Wf	office assistant
	1849	Ost	Pos-pos	construction clerk	1859	Pos-br	registrar
		Saa	Rh	cashier	1859	Rh	
	1854	NME		laborer	1860		by material manager
	1846	SPE(Ost)	Pos	fireman	1860		registrar
Wf-mi	1858	WEB	Wf-mi	station cashier helper	1861	Wf,Rh	cashier, cargo expedite
	1850	WEB	Wf	(by construction and business	1861	Wf	examiner
	1853	WEB	Wf-mu	in the central cashier	1862	Wf-mu	central cashier assistan
Pr-ptdm	1856	(Ost)*		comptroller assistant	1864	Pos-br	calculator
	1849	WEB	Wf	clerk helper	1864	Wf-ar	cargo expediter assista
	1860	Ost		expediter	1865	Pos-br	expediter
	1862	NME		laborer	1865		copyist
Brln.ptdm	1865	NME	Br-Brln	luggage-expediter	1866	Sch	expediter
	1856	WEB	Wf-mu	construction assistant	1866		construction assistant
	1857	(Ost)*			1866	Rh	cashier and calculator(i
	1859	RNE	Rh	porter	1867	Rh	soil master
	1857	RNE	Rh	clerk helper	1867	Rh	station staff
	1858	MWB	Wf	calculation helper	1867		accounting helper
	1861	kgl.EBD	Rh-dus	tender of construction	1870	H	construction assistant(H

il servant

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warehouse manager

in WEB)

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IEB)

The abbreviations in <Table 1>:

**A. Railroad (Line)**

ADE	:Aachen-Düsseldorf Eisenbahn
BAE	:Berlin-Anhalter Eisenbahn
CMT	:Coln-Minden-Thuringen Verbindungsbaahn
FWN	:Friedrich-Wilhelms Nordbahn
HB	:Hannover Staatseisenbahn
kgl. EBD	:kgl. Eisenbahn Direktion
KMB	:Köln-Mindener Eisenbahn
MWB	:Main-Weser Bahn
NME	:Niederschlesisch-Märkische Eisenbahn
Ost	:Kgl. Preuß. Ostbahn
REB	:Rheinische Eisenbahn
RNE	:Rhein-Nahe Eisenbahn
ROE	:Rhein-Osnabrucker Eisenbahn
Saar	:Saarbrückner Eisenbahn
SPE	:Stargard-Posener Eisenbahn
TEB	:Thüringer Eisenbahn
WEB	:Westfälischer Eisenbahn

**B. Place name**

State (Provinz)	Prefecture (Regierungsbezirk)
Pr	:Preußen
Pos	:Posen
Pom	:Pommern
Br	:Brandenburg
Sac	:Sachsen
Sch	:Schlesien
Rh	:Rhein
Wf	:Westfalen
H	:Hannover
Aus	:Ausland( Foreign countries)
	Aa :Aachen
	ar :Arnsberg
	br :Bromberg
	brl :Breslau
	Brln :Berlin
	dus :Düsseldorf
	dz :Danzig
	fao :Frankfurt a.O.
	kb :Koblenz
	ko :Köln
	kon :Königsberg
	ksl :Köslin
	ma :Marienwerder
	mi :Minden
	mr :Merseburg
	mu :Münster
	pos :Posen
	ptdm :Potsdam
	st :Stettin
	tr :Trier

Tabale 2: The increases of the "exceptional" appointed civil servants which were contrasted in those of all personal in each office.

Department		1 8 5 0	1 8 5 9	1 8 5 0	1 8 6 9
		"Exceptional" employees	"Exceptional" employees	"Exceptional" employees	"Exceptional" employees
Railroad(Line) Management (Bahnverwaltung)		19 (2,385	6,894)	24 (2,385	17,287)
section: Superintendent		4 (4 94)		4 (4 65)	
Special Management		7 (2,225	5,685)	9 (2,225	14,041)
Station Management		6 (148	843)	8 (148	2,487)
Telegraph		1 (6 186)		1 (6 521)	
Purchasing and Stores		1 (2 86)		2 (2 173)	
Transport Management (TransportVerwaltung)		10 (770	3856)	14 (770	13,329)
section: Superintendent		2 (1 26)		2 (1 243)	
Executive Management		6 (732	3463)	9 (732	12,197)
Rolling-Stock and Machinery		2 (37 367)		3 (37 889)	
General Management (General Verwaltung)		15 (76	472)	21 (76	1,134)
section: Central Office		6 (27 165)		8 (27 543)	
Control Bureau		2 (21 185)		4 (21 315)	
Central Cashier		7 (21 92)		9* (21 165)	

\* including 1 case in 1870

Note: "()" means the increase of the all personnel in the department and section.

source: GStA Berlin-Dahlem, Rep.89(2.2.1) 29419 - 29422, 29424