THERE WERE LARGE DIFFERENCES between the Japanese-style enterprise systems existing in Japan after World War II and those existing before the war. In the economic system put together in Japan after the war, lifelong employment, pay based on seniority, company welfare programs, and enterprise labor unions in which blue- and white-collar employees mixed together, all functioned smoothly to create improved productivity and efficient enterprise management. This system became the condition that would support enterprise growth in postwar Japan. This study represents a preparatory step in a more far-ranging study of how the postwar Japanese enterprise system changed from the system in vogue before the war. A few of the features characteristic of the postwar system but not found before the war made an appearance under the total administrative controls imposed on the country in the period 1936–45. These few features appearing during the war emerged in the very special conditions that existed under that total administration, however, and it is wrong to link them directly to the features of enterprise management that existed in the postwar period of high economic growth. I personally believe that these latter features were
formed in three stages: the wartime period, the postwar reform period, and the high-growth period itself.

In this study, I shall turn the spotlight onto: (a) the wartime increase in the numbers of white-collar and blue-collar workers and the shrinking of the gap between them; (b) the inroads of female labor during the war; and (c) welfare program facilities, to show that the process of the first changes in the postwar enterprise system in Japan was the same as the wartime process. Specifically, I shall take up and study the case of Nippon Kōkan, the second largest steel producer in Japan and a company that possessed integrated steelmaking facilities, with its principal bases being ironworks in Kawasaki and Tsurumi and a shipyard in Tsurumi.

WORKERS AND STAFF DURING THE WAR

Increases in employee numbers

Let us look first at quantitative changes in the makeup of the labor force during the war, beginning with the workers. The number of workers registered as company employees increased rapidly from 1937 after the outbreak of hostilities with China. The increase from 1942 was extraordinary, and when numbers peaked in 1944 they represented almost a sixfold increase over 1937 numbers (see Table 1). On the other hand, there also was a rise in the number of those on temporary retirement ("those on temporary retirement" during the war referred to people who had been conscripted into the armed forces or who had enlisted voluntarily). The ratio of "temporary retirees" to "registered workers" was 16% in 1943 and 23% in 1944.

As a rule of thumb, we can say that the number of people "working" came to about 80% of the number registered as workers. For in addition to temporary retirees, there also were long-term absentees (because of illness, for example), and so the number of people actually working would be considerably less than that. At the Kawasaki

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1 This study is an abbreviated version of chapters 6 and 7 of the author's Nihon senji kigyōron josetsu: Nippon Kōkan no baai [Introduction to the debate on Japanese wartime enterprise: The case of Nippon Kōkan] (Tokyo: Nihon Keizai Hyōronsha, 2002). Throughout this paper, "workers" stands for blue-collar workers, and "staff" stands for white-collar workers.
<table>
<thead>
<tr>
<th>Year</th>
<th>Workers Registered</th>
<th>Workers Temp. retiree</th>
<th>Workers Working</th>
<th>Staff Registered</th>
<th>Staff Temp. retiree</th>
<th>Staff Working</th>
<th>Workers per 1 staff</th>
<th>Workers per 1 staff</th>
<th>Sales per 1 staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>1936</td>
<td>5,517</td>
<td>n/a</td>
<td>n/a</td>
<td>743</td>
<td>35</td>
<td>708</td>
<td>7.43</td>
<td>n/a</td>
<td>86</td>
</tr>
<tr>
<td>1937</td>
<td>7,311</td>
<td>n/a</td>
<td>n/a</td>
<td>906</td>
<td>57</td>
<td>849</td>
<td>8.07</td>
<td>n/a</td>
<td>127</td>
</tr>
<tr>
<td>1938</td>
<td>9,216</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>893</td>
<td>n/a</td>
<td>n/a</td>
<td>169</td>
</tr>
<tr>
<td>1939</td>
<td>10,398</td>
<td>n/a</td>
<td>n/a</td>
<td>1,281</td>
<td>123</td>
<td>1,158</td>
<td>8.12</td>
<td>n/a</td>
<td>137</td>
</tr>
<tr>
<td>1940</td>
<td>10,444</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>1941</td>
<td>13,991</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>1942</td>
<td>27,504</td>
<td>4,721</td>
<td>22,783</td>
<td>4,549</td>
<td>610</td>
<td>3,939</td>
<td>6.05</td>
<td>5.78</td>
<td>61</td>
</tr>
<tr>
<td>1943</td>
<td>28,367</td>
<td>4,447</td>
<td>23,920</td>
<td>5,655</td>
<td>665</td>
<td>4,990</td>
<td>5.01</td>
<td>4.79</td>
<td>55</td>
</tr>
<tr>
<td>1944</td>
<td>44,115</td>
<td>10,328</td>
<td>33,787</td>
<td>8,512</td>
<td>2,099</td>
<td>6,413</td>
<td>5.18</td>
<td>5.27</td>
<td>51</td>
</tr>
<tr>
<td>1945</td>
<td>17,722</td>
<td>6,246</td>
<td>11,476</td>
<td>5,568</td>
<td>1,599</td>
<td>3,969</td>
<td>3.18</td>
<td>2.89</td>
<td>50</td>
</tr>
</tbody>
</table>

*Note:* The units are for the number of people, except for the last column, where the unit is 1,000 yen; n/a stands for “not available.”

*Sources:* A Forty-Year History of Nippon Kōkan; for 1935–1936, A Thirty-Year History of Nippon Kōkan and Register of Staff Names; “Kaisha genkyō” [The present state of the company] (in the possession of the Faculty of Economics, The University of Tokyo); and Yoshikazu Nakada’s “On Improving the Company’s Organization.”

Ironworks, for example, in December 1943 26% of the “working” workers were long-term sickness absentees, while at Tsurumi Ironworks they amounted to 24%. Furthermore, of the workers at Kawasaki Ironworks absent because of sickness, 2,226 of them, or 16% of the “working” workers, had been absent for longer than one month, and at Tsurumi Ironworks the same percentage (16%) was reached. By April 1945 29% of the registered workers at Kawasaki Ironworks had been conscripted into the military or had enlisted, while 14% of the “working” workers were long-term absentees.

*2 These figures have been calculated on the basis of Table 9 on pp. 522–23 of Nippon Kōkan Kabushiki Kaisha yonjūnen shi [A forty-year history of Nippon Kōkan] (Tokyo: Nippon Kōkan, 1952).*
Accordingly, though the number of people registered as workers had risen, the number of those actually working was not so large. If we count the long-term absentees, conscripts, and enlisted service personnel as nonworking registered workers, we will find that the percentage of registered workers actually doing work at Kawasaki Ironworks was 55%, and at Tsurumi Ironworks, 50%. Hence the rise in the number of registered workers at these places becomes more and more meaningless the closer we get to the end of the Pacific War.

Next let us look at staff numbers. These numbers, like those for workers, also increased abruptly when the war began. One of the reasons that can be given for this abrupt increase in staff numbers is the amalgamation of Tsurumi Shipyard with Nippon Kōkan in 1940. Yet even though both workers and staff were retained after the amalgamation, a comparison of 1939 and 1942 figures shows that the proportion of staff numbers was higher in the latter year; hence the increase in staff numbers cannot be explained merely by amalgamation. This means we need to look deeper into the reasons for that increase. (Like the workers, staff also had their share of increasing numbers of "temporary retirements"—including conscription.)

Let us look again at Table 1 in order to study the figures comparing staff numbers with worker numbers. During the Pacific War there is clearly a sudden rise in the proportion of staff numbers, and in 1945 one out of every four employees was a member of staff. There was a conspicuous shortage of capable staff during the Pacific War years, and to counter the increase in unskilled labor and the swelling of the ranks of management, the sphere of action of staff members widened, and the importance of their activities grew. At the same time, however, the volume of sales per staff member tended to get lower each year during the Pacific War; though more were hired, the cost burden resulting from the increase in their number was also increasing.

The shortage of labor and the makeup of the workforce

There had been a shortage of labor in the steel industry from the start of hostilities with China, but from around 1942 the shortage became serious, so that companies stepped up their training of youth laborers and made efforts to retain them. The employment
policies of Nippon Kōkan encouraged factors that made the tightness of the labor market even worse in its case, especially during the war. For the company had striven, from the time of its founding, to hire large numbers of people with military backgrounds, “in order to put emphasis on physical constitution and discipline” (and to have stronger control and supervision over the workers). In 1933, for example, about half of the workers (1,300 of them) had a military background. The company’s deliberate policy of hiring large numbers of ex-soldiers thus had unfortunate consequences when the government enforced wholesale conscription of ex-soldiers, a step that revealed a huge flaw in the policy.3

The insufficient workforce had to be supplemented by means of a motley crew. If we look at the makeup of the workers at Kawasaki Ironworks in April 1945, we find that only 48% of the “actually working” workers were regular workers in one of two categories: a) people conscripted as laborers and assigned to work at Nippon Kōkan and b) workers who had not yet been conscripted to work as laborers at the factory. This means that 43% of the registered regular workers had been conscripted into the military. Skilled laborers were thus in extremely short supply.

To make up the number of key laborers, the company had to conscript more laborers and train them. Despite the company’s efforts there still were insufficient laborers, so their numbers had to be supplemented by such unskilled labor as laborers imported from Japan’s colonies (trainees and Korean conscript workers), female workers, members of the Patriotic Working Corps (kinrō hōkokutai), and prisoners of war. A breakdown of the workforce at Kawasaki Ironworks in April 1945 shows that conscript laborers who could be considered regular workers totaled 6,786 people (49.4%); newly conscripted and as yet unconscripted workers (who we assume were unskilled labor) totaled 2,653 people (18.3%); laborers forcibly brought over from the colony of Korea totaled 2,502 people (17.7%); female workers totaled 657 people (4.6%); Patriotic Working Corps members and prisoners of war amounted to 549 people.

3 According to Jerome B. Cohen, Japan’s Economy in War and Reconstruction (Minneapolis: University of Minnesota Press, 1949), deliberately hiring ex-soldiers was not a practice peculiar to Nippon Kōkan; it was a common practice in the steel industry. In 1942 one-third of the skilled laborers and foremen in the steel industry were conscripted.
(3.8%); and there were 995 day laborers (7.0%).⁴ What was happening was a dilution of labor, with the company trying to fill up the shortage of skilled labor with a massive injection of unskilled labor.

As a result of such a massive injection of unskilled labor, from 1941 on there was a sharp drop in labor productivity. If we look at plate production at Tsurumi Ironworks, for example, we will see that, though the working ratio from 1941 to 1944 stayed more or less above 70% and laborer numbers increased, the amount of production of plates per 1,000 working hours was around 2,500 tons in 1941, whereas in 1942–43 it fell to 1,500–2,000 tons, then even further to under 1,000 tons in 1944.⁵

**WARTIME WELFARE PROGRAMS**

*Rationing*

Psychological pressure was not enough to retain one's workforce during the war and to increase its efficiency. When the supply of foodstuffs and other living essentials began to be squeezed, a variety of goods had to be provided through the enterprise. In the steel industry in particular, because of the large number of laborers engaged in work involving intense heat and heavy labor, it was considered necessary to provide them with food, work clothes, soap, and the like, more so than in other occupations. With the government providing little in the way of rationed commodities and with a bloated workforce of unskilled workers, companies were being forced to furnish daily necessities themselves.

Nippon Kōkan for years had a purchasing center run by a mutual aid association.⁶ When the need to consolidate the supply of goods

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⁴ Kinrō-bu Seiin-ka [Labor Division, Work Force Adjustment Section], “Kōin idō shūhō” [Weekly report on worker movement], 1–7 April 1945, Matsushita Shiryō No. 401, in the possession of Municipal History of Yokohama City Editorial Section, General Affairs Bureau, City of Yokohama.

⁵ U.S. Strategic Bombing Survey (Pacific), Reports, Section II (36) b, U.S. National Archives.

⁶ All the workers in the company were members of the mutual aid association. The Distribution Center supplied daily necessities at low prices. *Nippon Kōkan Kabushiki Kaisha sanjūnen shi* [A thirty-year history of Nippon Kōkan] (Tokyo: Nippon Kōkan, 1942), p. 395.
became urgent, the company set up a Distribution Center for Laborers’ Goods managed by the company itself (in August 1943). The reason was that the increase in conscripted laborers and other factors had made it extremely difficult to distribute rationed goods through the purchasing center, which, like all cooperatives, was funded by the people who joined it. Because this situation was unworkable, the company bought up the purchasing center and restructured it as a body for distributing rationed goods.\(^7\)

Rationing of work clothes and cotton products had begun in May 1940, through industrial patriotic associations. The chief administrators in charge of all the regions in the country decided, on the basis of representations by the industrial patriotic associations located at steel-making factories, the amounts to be allotted to each patriotic association. Later, from October 1942, goods used by laborers such as rubber-soled tabi, rubber overshoes, and soap were supplied through the same system to each of the patriotic associations.

In January 1943 the Cabinet decided that all goods used by laborers would be uniformly distributed through the industrial patriotic associations. In the case of Nippon Kôkan such rationing was carried out on the basis of information made available by the Iron and Steel Control Association, under whose jurisdiction the company fell. On the basis of quotes determined by the Ministry of Commerce and Industry, the Control Association made representations for each of its members to the Ministry of Health and Welfare and the Ministry of Commerce and Industry. The Ministry of Health and Welfare then made representations to the regional chief administrators, who in turn allotted the goods to each industrial patriotic association. On the basis of the amounts assigned to enterprises, purchasing votes were issued to enterprises.\(^8\)

How did the company handle rationing in the concrete? If we take the year 1944 as an example, we find that the rationing of

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\(^7\) This trend was found in other companies as well. Mitsui Shipbuilding Co. did the same, for example. See Shōgyō Kumiai Chūōkai, ed., Kōjō to kōbaikai mondai ni kansuru shiryo shū [Materials on the problem of purchasing associations in factories, etc.] (Tokyo: Shōgyō Kumiai Chūō-kai [Central Association of Industrial Cooperatives], 1943), p. 41.

\(^8\) Ibid.
goods was carried out by the Daily Necessities Distribution Center managed by the Welfare Department of the company. Three types of sources were involved in the operations of the Daily Necessities Distribution Center: a rations quota reliant upon government-agency mediation, rations derived from the company's purchases, and goods which every employee could purchase with his own money.9

The Daily Necessities Distribution Center's sales were: 31% in the government's rations quota, 19% in the company purchases rations, and 50% in its own purchases (based on amount of money); thus, fully half were rations, or goods that would be rationed in accord with some criterion or other, while the other half were general miscellaneous goods that could be purchased on the open market. It is easy to imagine that, at a time when commodities were in short supply, these rationed goods would have had a big impact on the daily lives of laborers. If we look at daily commodities that were rationed out, we find that 53% were foodstuff items (including sake and confectionery), and 23% were clothing items. In the remaining 24% were included such items as cigarettes, soap, and sundries. Government-agency-mediated rations were mostly in the line of clothing, followed by sake; these two items alone accounted for 68% of government-agency-mediated rations. The rations derived from the company's purchases were almost entirely foodstuffs, with the company using its purchasing power to buy food in large quantities for the benefit of its own employees. The rationing out of food by the government was inadequate, so for this reason the company was forced to run around to secure food.

We still have to look at the rationing process in more detail. In the case of those goods that were allocated as a result of government-agency mediation, the mediating agency allocated quotas to Nippon Kōkan through three routes: the Iron and Steel Control Association, the prefecture, and the industrial patriotic association. Of the goods thus allocated by government-agency mediation, 92%
required recompense and 8% were free. The goods were rationed out in accordance with detailed categories based on qualifications, the types of work being done (blast furnace, intense heat operations, open hearth furnace), whether the employee was a drinker or a teetotaller, and so on. The main rationed items allocated to the company, however, were things needed for steel manufacturing work. During the year 1944 government agencies allocated rationed goods to the company on 113 occasions (allocations that occurred over more than one day are still counted as one occasion), while there were only 11 occasions in which items were rationed out to all the employees.

Rations derived from the company’s own purchases were parcelled out on 106 occasions in the whole of 1944. The allocation of the company’s purchases (remember that they were mostly food) to all the employees of the company occurred 24 times that year—an exceedingly high number. Most of the items parcelled out to all the employees were taros/sweet potatoes, fruit, cigarettes, seasonings, and the like. Because most of these were foodstuffs or luxury items, they assisted in maintaining the workers’ lifestyles.

In the latter half of the war, when daily necessities were in short supply, it was extremely difficult to mobilize laborers simply through psychological motivation, and measures had to be taken that were accompanied by more concrete incentives. This was why enterprises were compelled to parcel out foodstuffs, clothing, and other material goods. In Japan, where standards of living had fallen to harsh lows (even compared with those of people living in Germany at the same time), the planned economy of the national government was absolutely incapable of supplying necessities, and enterprises were thus forced to become involved in providing means of sustenance.

Now, whereas the quotas allocated through government-agency mediation were biased towards materials indispensable for the work of steel manufacturing, the items purchased by the company leaned towards daily necessities. In the course of 1944 both these sources were

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(government-agency quotas and company-purchased items) were parceled out on a total of 219 occasions taken together. Thus, at a time when ordinary citizens were finding it difficult to acquire daily necessities (food, sundries, clothing, etc.), there were obvious benefits to be gained in belonging to a large company.

The enterprise had set up its own cafeterias as well. The percentage of total registered workers using cafeterias run by the company from August 1945 to January 1947 came to 38%. The burden of running these cafeterias from 1945 to December 1946 came to 2,850,000 yen, which covered 59% of the costs for materials, wages, fuel, water, and miscellaneous expenses. The costs of the cafeterias borne by the company accounted for approximately 4% of the company's sales for the period October 1945–August 1946.

**Housing**

Most of the laborers working in the cities were living in rented accommodation. In general, the shortage of housing after hostilities began with China in 1937 became acute. Yokohama and Kawasaki, where Nippon Kōkan's main plants were located, were no exceptions to this general rule. In 1939 the vacancy rate in the Yokohama-Kawasaki belt stood at less than 3%, which means that it had fallen below the "glaring housing shortage" mark. In order to supplement housing for its workers, Nippon Kōkan hastily built lodging houses, purchased already existing buildings, or leased buildings, in an effort to secure accommodation.

The lodging houses for Nippon Kōkan's Kawasaki Ironworks workers during the war and into the postwar period were divided into company houses (for workers with families) and dormitories (for unmarried workers). In 1944 the sufficiency rate of housing for its workers was 63%. Unmarried workers were particularly well accommodated, with 88% of them living in company dormitories. Faced with the need to supplement its workforce by bringing in con-

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11 According to a table of cafeteria incomes and disbursements, the operating costs were divided into direct material costs (for staples, side dishes, and seasonings) and upkeep. I calculated the amount borne by the company by subtracting the expenses from the amounts paid by the diners through using their meal coupons. Depreciation is therefore not included. If this were also included the company's burden would be higher.
script workers, members of the Patriotic Working Corps, and laborers from the colonies, Nippon Kōkan was forced to find housing for them through its own efforts. According to the "Detailed Statements of Movements in Worker Housing" (19 February 1947), the construction and leasing of worker dormitories began in 1940, and these activities abruptly rose in 1943 and 1944. When the war was over, the company was in possession of 497 buildings, with a combined area of 24,000 tsubo (therefore, approximately 113,500 square meters), with a capacity to house 6,300 people. At the same time it was leasing 61 buildings with an area of 7,000 tsubo (or approximately 33,105 square meters), with a capacity to house 3,400 people. The company had grown by the end of the war into an enterprise that could secure housing for nearly 10,000 people in the Yokohama-Kawasaki area; it had acquired during the war colossal assets in land and real estate. When the war ended, it went on buying more and more land and buildings that had escaped the ravages of war, with the aim of offsetting the housing shortage.

The indiscriminate bombings of cities in 1945 did more damage to the company’s houses and dormitories scattered around Yokohama and Kawasaki than it did to the company’s Kawasaki Plant. Calculated in terms of the housing capacity lost, 41% of the company’s houses and 57% of the dormitories were destroyed by fire, with the result that the company was unable to support a large number of laborers. The company’s supply of housing to its workers dropped sharply in 1945. Even when the war was over, the dearth of public housing policies on the part of the government meant that employees were forced to rely on their company to provide housing. A special feature of the enterprise society of postwar Japan, in which social security measures would be partially replaced by an enterprise welfare program, was already rearing its head.

CHANGES IN THE MAKEUP OF STAFF

Changes during the hostilities with China

For our next step, let us consider the changes that occurred in the makeup of staff employees during the war. It is difficult to consider the changes from a time series approach, however, because of orga-
TABLE 2. Overall Composition of Staff in the Various Nippon Kōkan Divisions

<table>
<thead>
<tr>
<th>Division</th>
<th>1936</th>
<th>1939</th>
<th>Increase</th>
<th>Composition (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Affairs Div.</td>
<td>64 (28)</td>
<td>88 (43)</td>
<td>1.38</td>
<td>8.6</td>
</tr>
<tr>
<td>Accounting Div.</td>
<td>51</td>
<td>71</td>
<td>1.39</td>
<td>6.9</td>
</tr>
<tr>
<td>Tech‘l Control Div.</td>
<td>29</td>
<td>53</td>
<td>1.83</td>
<td>3.9</td>
</tr>
<tr>
<td>Tech‘l Research Div.</td>
<td>38</td>
<td>73 (2)</td>
<td>1.92</td>
<td>5.1</td>
</tr>
<tr>
<td>Mining Div.</td>
<td>-</td>
<td>18</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Shipping Div.</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kawasaki Plant</td>
<td>272</td>
<td>358 (5)</td>
<td>1.32</td>
<td>36.6</td>
</tr>
<tr>
<td>Ōgimachi Plant</td>
<td>66</td>
<td>134</td>
<td>2.03</td>
<td>8.9</td>
</tr>
<tr>
<td>Blast Furnace Div.</td>
<td>7</td>
<td>11</td>
<td>1.57</td>
<td>0.9</td>
</tr>
<tr>
<td>Sales Div.</td>
<td>63</td>
<td>81 (5)</td>
<td>1.29</td>
<td>8.5</td>
</tr>
<tr>
<td>Hospital</td>
<td>24 (10)</td>
<td>129 (64)</td>
<td>5.38</td>
<td>3.2</td>
</tr>
<tr>
<td>Electric Steelmaking</td>
<td>44</td>
<td>76</td>
<td>1.73</td>
<td>5.9</td>
</tr>
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<td>Niigata</td>
<td>3</td>
<td>13</td>
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</tr>
<tr>
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<td>9</td>
<td>0.90</td>
<td>1.3</td>
</tr>
<tr>
<td>Osaka Ironworks</td>
<td>-</td>
<td>19</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Zinc Ind‘l Works</td>
<td>4</td>
<td>6</td>
<td>1.50</td>
<td>0.5</td>
</tr>
<tr>
<td>Part-timers</td>
<td>33</td>
<td>29</td>
<td>0.88</td>
<td>4.4</td>
</tr>
<tr>
<td>Temporary retirees</td>
<td>35</td>
<td>123</td>
<td>3.51</td>
<td>4.7</td>
</tr>
<tr>
<td>Totals</td>
<td>743 (38)</td>
<td>1,293 (119)</td>
<td>1.74</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Note:**
1. Figures within parentheses = numbers of female staff. Because the registers do not identify who is male or female, I judged who were females on the basis of personal names and/or job classifications.
2. The figures for 1939 were inconsistent with those given in the original sources, so I checked and recalculated all of them.
3. The figures do not include those officials who were directors as well.

**Sources:** The annual Register of Staff Names for 1936 and for 1939.

Organizational changes, which make it impossible to show things that correspond in time series. For this reason I would like to proceed by considering two separate periods, that of the hostilities with China (1936–39) and that of the Pacific War (1941–45).

If we look at the statistics found at the end of the Shokuin meibo [Register of staff names] for 1936 and 1939, we can get some idea of
trends, division by division, for the company as a whole (see Table 2). It can be supposed that the number of staff on leave, or "retirement," increased because of conscription into the armed forces. The most noticeable increase in staff numbers is in the hospital. The medical treatment sector was expanded as a welfare-related division. The increase in staff at the Ōgimachi Plant is a result of the construction of one blast furnace after another during this four-year period. At the Kawasaki Plant, though absolute numbers are up, the proportion of the total number of staff has gone down. The relative weight of the direct production process represented by the factories has on the whole gone down, while other sections such as management and control, and welfare, have risen noticeably higher. The proportion of women staff has risen from 5.2% to 9.2%, the reason being an increase in female staff in the head office (the General Affairs Division) and in the nursing staff at the hospital. Before the war began there were hardly any women among staff members, but they increased in numbers during the war.

Let us proceed to look in greater detail at changes in the makeup of staff at the head office section (excluding the actual work-site operations at the ironworks and shipyard); for this, see Table 3. By "head office section" I am referring to the General Affairs Division, Accounting Division, Technological Control Division, Technological Research Division, Mining Division, Shipping Division, and the Blast Furnace Construction Division. I do not include the various offices or the hospital. Consequently, we shall be looking at something that does not include work-site operations, and we shall be studying changes in the makeup of staff there in order to get an idea of the company's management and control structure.

If one looks at the plain figures for all the staff in the head office, one notices an increase of 1.10 times during the four years from 1936 to 1939, but many of the numbers in 1936 are, for example,
### Table 3. Composition of Staff
at Head Office during Hostilities with China

<table>
<thead>
<tr>
<th>Division</th>
<th>1936</th>
<th>1939</th>
<th>Times increase</th>
<th>Real increase</th>
<th>Composition (%)</th>
<th>% of women</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Affairs</td>
<td>65 (28)</td>
<td>88 (43)</td>
<td>1.35</td>
<td>1.35</td>
<td>17.8</td>
<td>21.8</td>
</tr>
<tr>
<td>Accounting</td>
<td>&lt;4&gt;56</td>
<td>72</td>
<td>1.29</td>
<td>1.38</td>
<td>15.3</td>
<td>17.9</td>
</tr>
<tr>
<td>Technological Control</td>
<td>&lt;10&gt;39</td>
<td>53</td>
<td>1.36</td>
<td>1.83</td>
<td>10.7</td>
<td>13.2</td>
</tr>
<tr>
<td>Technological Research</td>
<td>&lt;43&gt;81</td>
<td>&lt;1&gt;74 (2)</td>
<td>0.91</td>
<td>1.92</td>
<td>22.2</td>
<td>18.4</td>
</tr>
<tr>
<td>Blast Furnace</td>
<td>&lt;49&gt;56</td>
<td>&lt;4&gt;15</td>
<td>0.27</td>
<td>1.57</td>
<td>15.3</td>
<td>3.7</td>
</tr>
<tr>
<td>Sales</td>
<td>68</td>
<td>81 (5)</td>
<td>1.19</td>
<td>1.19</td>
<td>18.6</td>
<td>20.1</td>
</tr>
<tr>
<td>Mining</td>
<td>-</td>
<td>18</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4.5</td>
</tr>
<tr>
<td>Shipping</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.5</td>
</tr>
<tr>
<td>Totals</td>
<td>365 (28)</td>
<td>403 (50)</td>
<td>1.10</td>
<td>1.53</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>(No double-counting)</td>
<td>259</td>
<td>398</td>
<td>-</td>
<td>1.54</td>
<td>11.1</td>
<td>12.6</td>
</tr>
</tbody>
</table>

**Note:**
1. The General Affairs figures for 1936 are totals for the Kawasaki Plant (the head office) and the Tokyo Branch Office; for 1939 they are the totals for the head office (in Tokyo) and the Kawasaki Plant.
2. Units for the first 2 columns are numbers of people; in the next 2 columns, how many-fold the numbers increased. Figures within < > indicate how many staff held more than one position. Those within ( ) indicate female staff. Determination of who were female members of staff was based on personal names and/or job classifications.
3. There are slight differences in figures between Table 2 and Table 3 because in the former, head-of-division directors and people holding more than one position were not counted. This table is a breakdown of the number of people who were actually assigned to these places.
4. The "No double-counting" row gives the total number of separate individuals employed, without counting the same individual twice or thrice because of multiple positions. The "Real increase" column shows how many times greater the figures are, after subtraction of the number of people holding more than one position.

**Sources:** The annual Register of Staff Names for 1936 and for 1939.

double-counting single staff members who held two positions, so when those individuals who held down two or more positions are counted as only one, the 1939 figures are 1.54 times higher. The General Affairs, Accounting, and Technological Control divisions do not show a great difference in growth. The Technological
Research Division, on the other hand, shows a drop in growth, but in 1936 there were 43 people holding more than one position. By 1939 these multiple-position staff members had decreased, and the division had actually been fleshed out considerably: when individual staff members are counted only once, the growth rate as of 1939 stood at 1.92. This growth is accounted for by repeated investment in technological innovation through the construction of blast furnaces and the introduction of such things as Thomas converters. A similar real growth rate can be seen in the Technological Control Division, where, when individual staff members are counted once only regardless of how many positions they held simultaneously, staff members were 1.83 times more numerous in 1939. During the China hostilities the company clearly was devoting considerable energy to planning, research, and development, and building up its technical and research areas.

The General Affairs Division shows a growth 1.35 times higher than in 1936. Within this growth rate is a noteworthy statistic: female staff numbers increased by 40%. Having a high percentage of female staff is a characteristic of the General Affairs Division. The classifications of the female staff in 1936 were “junior employees,” 23; temporary employees, 5—for a total of 28. In 1939 the female staff included one “secretary,” 3 “employees,” and 43 “junior employees.” Since the positions of “secretary” and “employee” were normally a male domain, this presence of female staff members in these positions is noteworthy. Nevertheless, female staff members were overwhelmingly holding down the low-level positions of “junior employee” and under. Their main types of work were as typists, lower-ranking secretaries, waitresses, tea ladies, and others in the clerical assistance class. They were junior employees, office apprentices, temporary employees, and the like—staff members, but down at the lowest level of the staff ladder.15

The number of people in the Accounting Division also increased, reflecting the fact that accounting tended to be concentrated in the head office section. The purchasing office in the Accounting Divi-

15 The ranking of job-function classifications in the clerical work sector at Nippon Kōkan was as follows (in descending order): managing director, councillor, engineer, secretary, employee, junior employee, office apprentice, temporary worker. The managing director at the top of the ladder sometimes also simultaneously was a director on the Board and the division chief.
sion expanded considerably (from 11 in 1936 to 20 in 1939), showing the importance the company attributed to the purchasing of raw material after the Material Mobilization Plan was brought in by the government. At this point in time the division had no female staff members.

The company created two divisions to deal with the expansion in operations aimed at acquiring raw materials and transporting goods: the Mining Division and the Shipping Division. In the Sales Division there were no female staff members in 1936, but women were being employed in 1939 (again, as junior employees and temporary employees).

The organization during the Pacific War and the makeup of staff

Because the company's organization was changed to combine the various divisions into bureaus, it is difficult to compare the makeup of personnel with that of the earlier organization. Moreover, the source used for a comparison of the makeup of staff, the Register of Staff Names, came out in November 1945. It does not provide a strictly accurate picture of the company during the Pacific War because considerable restructuring took place in the company between August and November (including the abolition of some divisions).

In Table 4 I present a summary of the makeup of staff at the head office. We saw in Table 3 that all together there were 398 members of staff employed in the various divisions of the company; by November 1945 the figure had swelled to 2.2 times that size, or 878.\(^{16}\) In addition, each base of operations (the ironworks and the shipyard, for example) had been organized into divisions and departments, with the result that staff working in clerical-type work had swollen to a considerably large number.

Let us see what we can learn by comparing the makeup of the division in the head office in 1939 and in 1945. Two new divisions, Labor and Supplies, had been newly established. Supplies had been taken out of Accounting and made independent in order to deal

\(^{16}\) There had been a Construction Bureau in the company in 1944, but its name was not listed in the November 1945 Register of Staff Names. It is believed to have been abolished immediately after the war ended. Consequently, we can suppose that the actual number of staff employed at the head office was much larger during the Pacific War.
Table 4. Composition of Staff at Head Office at the End of the War

<table>
<thead>
<tr>
<th>Bureau</th>
<th>Division</th>
<th>Total staff</th>
<th>Women</th>
<th>% women</th>
</tr>
</thead>
<tbody>
<tr>
<td>—</td>
<td>President’s Office</td>
<td>13</td>
<td>3</td>
<td>23.1</td>
</tr>
<tr>
<td>General Affairs</td>
<td>Gen. Affairs</td>
<td>184</td>
<td>55</td>
<td>29.9</td>
</tr>
<tr>
<td></td>
<td>Labor</td>
<td>163</td>
<td>55</td>
<td>33.7</td>
</tr>
<tr>
<td>Services</td>
<td>Accounting</td>
<td>171</td>
<td>42</td>
<td>24.6</td>
</tr>
<tr>
<td></td>
<td>Supplies</td>
<td>79</td>
<td>16</td>
<td>20.3</td>
</tr>
<tr>
<td></td>
<td>Business</td>
<td>106</td>
<td>9</td>
<td>8.5</td>
</tr>
<tr>
<td>Technology</td>
<td>Tech’l Research</td>
<td>66</td>
<td>4</td>
<td>6.1</td>
</tr>
<tr>
<td></td>
<td>Blast Furnaces</td>
<td>2</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Technology</td>
<td>4</td>
<td>1</td>
<td>25.0</td>
</tr>
<tr>
<td></td>
<td>Facilities</td>
<td>90</td>
<td>10</td>
<td>11.1</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>878</td>
<td>195</td>
<td>22.2</td>
</tr>
</tbody>
</table>

Note: Although a Construction Bureau was listed in a 1944 diagram of the company’s organization, it no longer existed in November 1945.

Sources: The Register of Staff Names (as of 1 November 1945).

with the purchase of raw materials. Also, a Business Division had been incorporated into the Services Bureau.

The Labor Division, which had not existed in any form previously, had been set up to manage the huge workforce of unskilled workers hired during the war. A Welfare Department was set up inside it, along with the usual departments like Personnel and Payroll, and this department had up to 96 people working in it. The fact that the enterprise had become involved in all aspects of the employees’ lives through the provision of clothing, food, and housing (all handled by the company’s Welfare Department) is another of the special features of wartime enterprise business management. By relying on the enterprise when controls over all commodities used in daily life were tightened and such items had become absolutely impossible to obtain, the workers and staff were able to obtain security in a basic area of their personal lives. Even medical treatment was provided, and the company’s hospital was rapidly expanded into a full-fledged medical facility, so in the social welfare aspect the reliance of workers and staff on the enterprise grew deeper and deeper. From the enterprise’s point of view, in order to
secure a labor force of a suitably large quantity at a time when labor was scarce, it had to supply the basic living conditions for its individual employees. Given the extreme shortage of material goods and the outbreaks of labor unrest right after the war, the company decided that welfare programs were to be carried on instead of being abolished. In another area as well there were pressures forcing a huge increase in staff, and this was the Labor Division, where more staff were needed because of the sheer amount of paperwork that had to be presented to government agencies in the wake of the controls on labor.

In 1939 the Accounting Division included the Purchasing Department, so if the staff working in that department are excluded, there were 50 people working in accounting-related positions. By 1945 this number had ballooned to 171. Because the progressively controlled economy had blown paperwork in management areas to huge proportions, the company had been forced to increase the number of people in its organization.

Purchasing-related tasks became the separate function of the Supplies Division. From the 20 members of staff handling matters in the Purchasing Office in the Accounting Division in 1939, the number grew to 79 in Supplies in 1945. Each of the ironworks had its own division for procuring raw materials, also, and not surprisingly there was a considerable increase in staff members in this area as well. The increase in numbers of people involved in raw-materials-related work resulted from a growth in the number of mines and affiliated companies within the enterprise itself (steps taken to acquire the raw materials for steelmaking in wartime to complement the use of the control organization). Any enterprises that could not acquire raw materials on the open market were forced to take directly into their own organization any subsidiaries or affiliates that handled raw materials, if they wanted to secure a stable supply of raw materials.

In contrast, a comparison of the 1939 Sales Division with the Business Division shows a relatively minor increase (81 people in Sales in 1939 versus 106 in Business in 1945). Sales-related work did not have much meaning when strong government controls were in place, and this seems to be the reason why there was less expansion in this area. In an economy where shortages are a constant fact of
life, there is no room for marketing, and the figures reflect the drop in the need to strengthen the sales-related structure.

Numbers were almost the same in the research and development areas connected with technology. There were 162 members of staff in the entire Technology Bureau in 1945, and 127 people in the Technological Control and Technological Research Divisions in 1939, so the ranks of personnel placed in technology-related work was rather thin. Without any department involved in doing research, of course study and research would lag behind. During the Pacific War research and development were strengthened in the munitions sector, but in general such activity regressed.

Another point worth noting in the composition of staff members is the increase in the number of female staff. In the General Affairs Bureau 32% of staff were women, while in the Services Bureau the figure stood at 19%. The proportion of women was especially high in such divisions as General Affairs (30%) and Labor (34%). The type of positions they held were almost completely in the clerical assistance sector (typists, waitresses, lower-ranking secretaries), or as telephone operators, or as cooks preparing meals in company dormitories and other housing. Their positions almost universally were low-ranking: employees, junior employees, office apprentices, and so on. Nevertheless, the female workforce was distributed through almost all the divisions. Especially in clerical work in areas such as general affairs, labor, purchasing, and sales, the clerical assistance activities of women had become indispensable. A slight tendency in this direction was seen in the years of the hostilities with China, but at that time the tendency was limited to the General Affairs Division and one or two other specific sectors. During the Pacific War period, however, women working in the clerical assistance type of work had become established as a stratum of their own within the composition of staff. And the range of their work had expanded.

Naturally enough, there was clearly a large difference between the treatment and wages accorded to male staff with technical specialties and these women staff members, and status discrimination did exist. The institutionalization of these two very different strata within staff personnel was another important feature of wartime enterprise. The stratum represented by women was also referred to as that of “staff worker,” and their pay was generally lower than that
of the ordinary staff member—in fact, some of them were receiving the same daily wages as workers or, in some cases, lower daily wages than workers.\textsuperscript{17} It is believed that the increase in clerical work and the shortage of a male workforce as a result of conscription were two factors that accelerated this tendency.

As we have seen above, in the Pacific War period an organizational system evolved in which the enterprise controlled even the personal lives of its workers and staff through the establishment of its Labor Division. To the employees, being a part of the enterprise meant that material goods needed in daily living, and accommodation, would be guaranteed; in this way an environment was formed that would heighten the employee’s sense of belonging to the enterprise. On one hand, under an “economy of shortages” the technological development and sales sectors suffered from a growing reluctance to allocate human resources to those sectors. On the other hand, as market functions deteriorated as a result of the controlled economy and the amount of clerical work necessitated by control measures blew out of all proportions, the company’s internal clerical control structure also blew way out of proportion. As a result of increasing clerical work and the conscription of male staff, female staff were making greater inroads into the workforce. These tendencies also held true in the area of actual work-site operations.

Changes in the character of staff members

Just as there was a conspicuous shortage of workers, so, too, there was a conspicuous shortage of staff. In order to make up the shortage, the company was forced to open the path of promotion from the ranks of workers to the ranks of staff.\textsuperscript{18} The path to promotion in status to the ranks of staff was fundamentally narrow, but at this point in time the company put into practice a plan of promoting

\begin{itemize}
\item General Affairs Department, General Affairs Division, “Seisan sogai jiko” [Items hindering production], \textit{Yokohama-shi shi} [A municipal history of Yokohama], 2nd series, shiryo-hen 4 ge [historical materials, Vol. 4 No. 2] (Yokohama: City of Yokohama General Affairs Bureau, 1994), p. 327.
\item Engineers had to be found, not from university graduates, but from promoted foremen and even from middle high school graduates. See Yuzuru Doi, “Nippon Kōkan ni okeru tenro seikō hō no ayumi” [The course of converter steelmaking methods in Nippon Kōkan] (internal report, Nippon Kōkan archives), p. 19.
\end{itemize}
workers to staff positions through the recommendation of the head of the ironworks or shipyard, and this was done twice a year.\textsuperscript{19}

Let us also look at the educational background of staff members. Among the male staff, 18.5\% had left school after primary school; 34.0\% left school after completing intermediate education (middle school and early years of high school); 25.3\% had graduated from a special professional school (a college), and 22.1\% had graduated from a university.\textsuperscript{20} Though differences exist depending on which divisions they belonged to, in general what the figures show is that, while there were quite a large number of male staff with high education, there was a steady increase in the number of those with only primary education; also, as we see in the case of Tsurumi Ironworks, quite a few male workers had been promoted to the male staff level. There are no documents available to indicate educational backgrounds of all the staff at Nippon Kōkan before the war, but as of the end of 1933, of 18 staff members hired before 1915, only one had graduated from a higher-level primary school and the remainder had been graduates of special professional schools or universities. Also, of the 82 staff who had been hired by December 1923, according to a document that mentions the names of 40 of them, not a single one had left school at the primary level.\textsuperscript{21}

The female staff members hired in large numbers during the war also had a better education than male workers. The educational background of the female staff members was 48.5\% who had left school after primary school and 50.5\% who had graduated from

\textsuperscript{19} The workers who were candidates for promotion were those "who had the qualification of graduation from at least a middle school or the equivalent." See the Tsurumi Ironworks' "Kōin shinkyū shōkyū naiki" [Bylaws on worker promotion and advancement] (found in "Gyōsei sasatsu setsumei shiryō" [Materials explaining administrative inspection] Dec. 1943, Kashiwabara Monjo 234–7 held in Modern Japanese Political History Materials Room, National Diet Library). Advancement and promotion in status were not being practiced at regular intervals as late as 1939, (Yoshikazu Nakata, "Shasoshiki no kaizen ni saishite" [When improving the company's organization], September 1939, Matsushita Document. This document is also found in Yokohama-shi shi, 2nd series, historical materials, Vol. 4 No.1.)

\textsuperscript{20} This information on educational background is based on Nippon Kōkan’s Chūō kōtei kyōikai kankei shiryo [Materials relevant to welfare, Central Economic Council], found in Yokohama-shi shi (see n. 19 above).

intermediate girls' schools, so more than half had at least a middle high school level. When we compare their educational background with that of the workers at the company, we see a clear difference. As of 30 September 1945, 82% of the workers had left school after graduating from a higher-level primary school, and 16.7% had graduated from an ordinary primary school. As of 31 January 1947, only 9.5% of the workers had had a middle high school education, with almost all the rest having completed their schooling at the primary school level. It is clear from these statistics that female staff members of the company had higher educational backgrounds than most male workers did.

Let us next turn to compare the salaries of staff and workers. During the war the wages of the workers went up in proportion to the number of years of continuous service. The wages of staff had already been based on this system from the time the hostilities between Japan and China had begun, and in the mid-1940s both worker and staff wages were describing similar wage curves. Periodical increments in wages and salaries had been institutionalized at Nippon Kōkan, and a ban against laborers changing places of employment had been enforced by law (promulgated 31 March 1939, effective 20 April 1939). As a result, wages based on continuous years of service became an entrenched practice in the case of both staff and workers.

Nevertheless, there were large gaps between male staff and female staff in regard to the number of years of continuous service. Of the 103 female staff employed at Kawasaki Ironworks in 1947, 100 had less than seven years of continuous service. In a way this was only to be expected, since they had been hired in large numbers only during the war. If we look at their ages, we find that 98 of them were under thirty years of age. Almost all of them were single young women (only 2 were married). As far as their job classifications were concerned, all 103 were at the lower levels of either “junior employee” or “employee”; not one was a secretary or higher. Thus female staff were hired in large numbers, and they were assigned to various workplaces, but they did not have many continuous years of service behind them; and they were unmarried women mostly under the age of thirty holding down the lower positions in the staff hierarchy.
The composition of staff salaries in August 1945 was broken down into a base salary (59.5%), a temporary allowance (29.8%), and other allowances for duties, family support, overtime, evacuation costs, etc. (10.7%). Because of the shortage of living materials and the rapid inflation that followed immediately after the war, however, the percentages of the base pay and temporary allowances dropped conspicuously and the percentage of other allowances jumped. In October 1946, the base pay stood at 25.1%, the temporary allowance was 25.9%, a work attendance allowance was 16.2%, the family allowance was 13.6%, an efficiency allowance was 13.4%, and other allowances were 3.8%. After the war, therefore, the wage structure underwent a basic change. The same sort of phenomenon occurred in regard to workers’ wages. The severe changes in living conditions that occurred after the war had the same impact on wage composition, whether it was staff wages or worker wages.

If we compare the wages of staff with the wages of workers at the time the war ended in August 1945, we find that the (monthly) wages of workers were better: the wage of a group leader (226 yen) was higher than that of an ordinary male staff member (209 yen). The wages of foremen or section leaders among the workers were on a level equivalent to or better than that of a chief clerk among staff. We can easily imagine that the lowest levels of staff and ordinary staff members would have been having really hard times making a living. Also, the wages of the female staff were conspicuously low, even for ordinary staff; they were being paid about half of what ordinary workers were receiving. While the proportion of female staff had increased during the war, the gap between their wages and those of other employees was quite large.

The reason for the high wages that male workers were receiving was that during the war one supplementary payment after another was added on to the base pay, in the form of such things as various allowances, incentive payments, and temporary wages. As a result, during the war the monthly wage of a worker foreman was on a level comparable with that of a chief clerk, even though if you looked only at the base pay it was lower. What raised the level of worker wages was the practice of providing incentives to the workers in

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22 Wage figures are based on the Materials Relevant to Welfare, Central Economic Council. See note 20 above for source.
order to raise productivity. Skilled workers were being conscripted into the military or were joining of their own volition; to retain the dwindling number of skilled workers within the company, and to guarantee them things to live in, the company had been compelled to provide various allowances.

Accordingly, it must be noted that the structure of the wages paid to staff and workers was different during the war. Workers’ wages had a higher percentage of allowances than of base pay, whereas in staff members’ wages the base pay continued to make up a higher proportion of the wage.

CONCLUSION

In the light of the above analysis and discussion, let us bring together some conclusions that can be drawn regarding changes that occurred in the enterprise system in Japan during the war.

1. The numbers of staff and workers increased, with the increase in staff numbers being particularly conspicuous. The factors leading to the increase in staff numbers were the establishment of a Labor Division, the expansion of the sales and accounting sectors, and advances in technological innovation during the hostilities-with-China period of the war. All sorts of levels of staff, including that of female workers, increased rapidly. During the war the head office became a workplace in which men and women worked together; this was something that had not been seen before the war.

2. The gap in status between staff and workers shrank, and it even became possible for workers to be promoted to staff. Workers’ wages rose, and workmen who held responsible positions received wages on a par with those of staff. On the staff side, the number of low-ranking (women) staff with low wages increased, with a resultant blurring of the distinction in status between that of worker and that of staff.

3. The company, faced with the need to employ large numbers of unskilled workers and manage them because of the conspicuous shortage of skilled workers, set up a Labor Division within the enterprise organization, expanded its welfare ser-
vices, and took on the task of personnel management. Because of the unplanned nature of Japan’s wartime economy, the company itself was forced to embark upon welfare services related to the everyday lives of its employees.

4. In the midst of a serious shortage of daily necessities and accommodation, both staff and workers came to depend upon the supply of welfare services offered by the company. Because the lives of staff and workers could not be maintained through what the government provided by way of daily necessities, the company itself took positive steps to supply food, clothing, and housing.

The narrowing of the gap between staff and workers became the foundation upon which an employee labor union was formed after the war. The welfare services provided by the company could not be terminated after the war because of the dire conditions in which its employees had to live after the war, as well as the severity with which the labor union became strident in its demands and violent in its actions. The distinguishing characteristics of the Japanese-style enterprise system thus became visible during the wartime period. Still, the Japanese-style enterprise system as we know it was a reorganized and reshaped system that underwent postwar reform as a result of factors different from what existed in the system that came into being during the war. A discussion of that postwar system must be the task of a separate paper.