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PROBLEMS IN THE INDUSTRIAL TRAINING IN JAPAN

by

Iwao Ishizaka

I. The Policy of Manpower Development and the Education for Vocational Skills

A. The Angle of Manpower Development

“Problems around the manpower development policy”

Regardless of whether in national economy or private enterprise, the growth and development of economy begin with the problem of human being and end with it. Finding the failure of the policy of high rate economic growth because of its looseness, the Ikeda Cabinet drew back its specialized star program of “economy”, and instead hung aloft the “manpower development” policy. It is basically an absurd thing that politicians speak of “human building,” since, for the civic political sense of modern society, “policy” is carried on the ground where some of human being govern others, and so politicians’ primary task must lie in the service for “demons”. When Marx and Engels said “Policy must be the control on things”, they were just expressing the civic political sense of the early modern age that gave birth to the Adam Smith’s “night watchman state” theory. Throughout the modern age, the problem of materialistic security of living and that of spiritual life have been to be rigidly separated into the subject realm of policy and that of religion and education.

However, following the development of capitalism, the progresses in labor mittels have tremendously transformed human relations standing on the medium of labor mittels. The developments in the social relations under the modern production techniques have made a reorganization of social organization unavoidable on a new principle, that would render fluidity to such division between policy and religion-education. This is the reason why we hear few objections against the Ikeda Cabinet’s signboard of “human building” from the circles of education and press, that must be specialized in the problem. Another reason may be that the civic political sense is immature in the education circle, but more fundamental is the extremely obvious significance that underlies in the relation between human being and economy in the modern age.

Truely, a projected economic growth could not be achieved without a

certain number of human being with a certain degree of ability. Our industry today is keenly feeling the shortage in engineers and skilled workers, to provide for trade liberalization and international competition and to perform technical innovation. Needless to say, the necessity of fulfilling such shortage is making the background of the Ikeda Cabinet's new signboard of human building. This point is the focus of recent arguments on the human building.

Economic growth is to be beared by the existence of human being with necessary ability. On the other side, however, it is equally doubtless that economic development will build up human being toward a certain direction. A certain limited side of human ability and potentiality will be developed, other sides being oppressed, in line with a given direction of economic development at a given point of time. This problem is also to be noted, but most current discussions are neglecting this point. We can see only one opinion referring to this point, that is, one by Prof. I. Nakayama,¹⁾ who argues that a big problem today is how to push back the pressure of industrialism upon human being and then to achieve the economic growth. Also the theme of "isolation of human being through organization", now being earnestly discussed in Europe and America, indicates the existence of this problem.

It is also to be taken into consideration that, under the striking technical advance of modern age, the problem of human being lies not only in individuals, but also in the relations between cooperating workers as well as those between workers and managing or guiding personnels.

Especially the advance of automation—meaning not only automation of particular process work but also that of a whole production process combining many works—is exposing human connection by medium of machines to a transformation of hitherto unknown scale. In place of the past furnace workers with poker and shovel in hand, in the modern ironworks or turbin electric power generating stations a small number of workers with appreciable technical knowledge are watching measuring instruments or handling operation boards, of tens to one hundred units.

The human integration conforming to the new automatic production process necessitates a reorganization of human relation under a form and a principle quite different from the traditional order of status. The way of transition from traditional order to new organization must propound a problem for realizing economic growth. Just such is the problem of improving the social order according to the length of service in business. The need for and the birth of junior workers with advanced skills work influence unavoidably on the owners of customary skills and the order in enterprise founded on them.

Anyhow, the problem of vocational ability to bear future economic growth, the problem of future human "Bild" to be moulded upon the economy, the problem of social relations to achieve successful advance in techniques; it would be nothing but the education in a wide sense that is to meet these problems and define the direction of solution. Hence, the focus of the present

1) Nakayama and Ohara; "Sangyokaino Yoseisuru Ningen", ("Industrial Requires Such Human Being"), Chuokoron, Nov., 1962.

arguments on human building is placed on the school system for science and skill education and the industrial education outside- and within-enterprise.

“Basic angle for manpower development”

Most arguments on human building have been, as stated above, oriented to the formation of a certain number of scientists, engineers and skilled workers, and so also the arguments on education, as the measures for human building, have been confined to making concrete plans including school system to educate scientists and engineers, vocational training establishments for a rapid solution of the shortage of skilled workers, or retraining institutions for middle and old age workers (with a sense of unemployment relief). It may be needless to speak of the necessity of these measures. In contrast, rather ignored is the scrutinization of the real way of human building, that is, the process and objective of education and their factual social environments. In other words, little has been done toward examining the potentiality and direction of human building “policy” through re-consideration on its objective conditions.

In principle the development of human ability is to be directed not to the simple object of economic growth, but to the formation of human being that must lead economic living toward a certain objective of human life. In this sense, the human building policy would be popularly accepted in the public, only when it is connected with the formation of human being not as “thing” but as self-development.

Education must be self-development among others. Then, it must be questioned whether the conditions for such line of education are given, even though the present human building policy is pointing to vocational education.

B. Tasks and Facts of Vocational Education (1)

“The demand of industry for vocational education after the war”

The Human-Ability Division of the Economic Council published its report on the development of human ability at the end of October, 1962. The report required strongly the development of manpower, human ability, especially that of scientists, engineers, high class clerical managers and skilled men by way of education and training, and further the modernization of personnel management as a means of effective utilization of manpower.

Following this report, in November, 1962 the Ministry of Education published the White Paper on Education which stressed that the investment on education is much contributory to economic and social development, and so education makes a profitable object of investment.

Although these two reports were prepared not from a common concept, they were samely in line with the earnest requirement of the industry for technique and skill education in order to meet the needs for innovation and international competition.

Already in 1950, the Federation of Steel Makers (Tekko Renmei) released “The Industry’s Opinion on the Reformed System of High School”. In 1952, the Japan Federation of Employers Associations (Nihon Keieisha Renmei) published the “Clamors on the Reexamination of the Reformed Education

System". Thereafter the industry required reformation of the educational system over and over again: in 1954, "Clamors for Reexamining Current System of Education"; in 1956, "Views on the Science and Skill Education Conforming to the Requirements of New Age"; and more recently in 1961, "Clamors for Establishing and Promoting Epochal Policy of Technique Education".

These requirements were primarily for the reform of educational system to meet technical innovation, but they were not confined to be such. As far as the technical rationalization of production process necessitates the rationalization of social relations, in the capitalistic system, the friction between management and labor inevitably grows in some form. Especially in the community of Japanese enterprise, where the regime in enterprise has been veiled in pre-modern type of social relation, e.g. life-time employment based on the length of service, the advance of technical rationalization must bring about such friction all the more. It is natural that strong opposition and resistance have broken out against one-sided rationalization by management due to the improved social status of labor after the war.

Here, the establishment of "thought" education system also becomes necessary for dissolving the friction between management and labor and reorganizing the regime in enterprise. A measure for this purpose inside enterprise was "human relations", and outside the industry the requirement presented itself in the form of earnest desire for moral education. A series of actions pointing to thought education system began with a suggestion by the Minister of Education of the revival of "shushin" lesson (moral lesson) in 1952, and was succeeded by the enactment of the New Education Committee Act of 1956 that changed public election to appointment system, and more recently by the enforcement of performance appraisal system for school teachers. The noteworthy point is that these actions were interwoven with the demands for the improvement of science-technique education at respective times.

The above mentioned two reports should be read in the context of such historical connection between education and industry after the war.

"The objects and character of the pre-war vocational education"

Japan has long been proud of the popularization of education, particularly the near perfect attendance in the obligatory primary education system, since the close of the Meiji Era (1868-1911). Truly, the primary education to cultivate people has been institutionally completed. However, it is in the ages of "junior", the ages of middle school education, that the most essential foundation for the growth of human being is formed. These are the period of founding not only for mental development but also for future occupational skill. In other words, self-awakening both as civic human being and as occupational being must be made in this period. The education in this period being so important, relevant systems of middle school and vocational education have been very poor throughout prewar as well as postwar days.

First, in prewar days, keeping middle schools mostly for liberal education out of account, we had only a small number of within-plant training institutions and poorly equipped supplementary vocational schools, to educate those junior workers who could not enter general middle school.

This fact is clearly indicated in the percentages of quasi-middle and middle levels to the number of school attendants classified by levels (Table 1), and the position of middle school graduates in the composition of working-age population by school careers (Table 2).

Table 1. School Attendants Classified by Levels, in percentage

	Primary Level	Quasi-middle Level	Middle Level	High Level
1895	96.5	1.8	1.3	0.4
1905	91.6	4.4	3.3	0.7
1915	79.0	8.0	12.4	0.6
1925	69.6	11.2	18.0	1.2
1935	65.7	14.1	18.9	1.2
1950	57.8	2.5	37.6	2.1

Note: Quasi-middle denotes supplementary vocational school in prewar years, and miscellaneous schools in postwar years.

Source: Ministry of Education; "Nippon no Seicho to Kyoiku" (The Growth of Japan and Education), p. 29.

Table 2. Working-age Population by School Careers, in percentage

	No Career	Primary Level	Middle Level	High Level
1895	84.1	15.6	0.2	0.1
1905	57.3	41.6	0.9	0.2
1925	20.0	74.3	4.9	0.8
1935	7.1	82.1	9.2	1.6
1950	2.3	78.5	15.8	3.4

Source: *ibid.* p. 59.

We see, for overwhelming majority of people education finished with primary level and only a small portion entered liberal or vocational middle school or received training at supplementary school.

In Table 3 the numbers of attendants at primary school, middle (and girls' high) school, vocational (middle) school and vocational supplementary school are illustrated. Even those who could learn at poorly equipped vocational supplementary school were rather fortunate. Most of primary school graduates, counting 8 million persons in 1935, were left to mere apprentice training or nothing. The vocational supplementary school, being at any rate supplementary establishment for working youths, was commenced in 1893 to supplement primary school education then having low attendance rate and, at the same time, to provide vocational knowledge and training. The number of this school increased to 15,000 by the end of the Taisho Era (1912-1925), but showed no further increase during the Showa Era (1926-). In 1930 only 1.8 percent of them had independent school-houses, most being annexed establishments to primary schools. Stillmore, most were for agricultural training, with only 105 schools for industrial skill.

Table 3. Attendants at Middle Education Institute, in percentage

	Primary School	Middle (and girl's high) School	Vocational (middle) School	Vocational Supplementary School
1895	7,670 million	33 million	6 million	3 million
1905	5,344	136	39	121
1915	7,454	237	93	498
1925	10,112	598	218	1,051
1935	11,425	752	397	1,902

Source: *ibid.*

Therefore, for those working youths who could not go to middle or vocational (middle) school, vocational training was afforded by such supplementary schools, or only as within-industry training by big enterprises such as army and navy arsenals, steel, shipbuilding, mining, and cotton and silk spinning, or by daily experiences as apprentice, of much irrational nature, in small and petty enterprises.

The institutional status being so poor, the objective of education could not be such one pointing to human and vocational cultivation of individuals. From the Meiji Era through the war defeat the supreme objective was nothing but "fukoku kyohei" (promoting national wealth and military power) and "shokusan" (industrial progress).

In the textile industry, including cotton and silk spinning, which had been the kernel of capitalistic development in the Meiji Era, an essential item of employee education was the "shushin" (moral) lesson. For example, in the factory school of Kanegafuchi Spinning Company the "shushin" lesson was arranged for the first to third year classes.¹⁾

In the Meiji as well as Taisho and early Showa Eras, there were not a few number of non-attendants or half-graduates of primary school among the girl workers coming from rural areas, and so supplementary education on reading, writing, arithmetic as well as household knowledges, sewing and manual arts was widely performed in factory schools. In such employee education including basic knowledges about factory labor and group living, the main pillar was the "shushin" lesson. It came to have more and more importance in the Taisho and early Showa Eras when the "thought problem" (class antagonism) and social unrest began to arise, and further in the war time it was carried as "komin" (public person) education.

The "shushin" lesson, that is, a spiritual education of "chukun aikoku" (loyalty to the emperor and nation), "koshi seppu" (fidelity to parents and husband) and "kinken rikiko" (diligence and hardworking), being combined with skill education with appreciable significance, afforded the foundation for the regime in enterprise as well as the state. In other words, therein were combined the objects of establishing modern industry and of founding absolute state.

1) T. Yamaguchi; "Kinroseishonen no Gijutsukyoiku" (Skill Education for Working Youth), Sangyo-gijutsu-kyoiku, vol. 1.

This was typically materialized in the "youth school" that became compulsory directly before the war (in 1939). This system had been founded in 1935 as an amalgamation of the "seinen kunren sho" (preliminary training for military service) and the above mentioned vocational supplementary school. Therein were amalgamated two kinds of establishments of different character, one for vocational education and one for military training, representing the incorporation of two objects, the formation of modern industry and that of modern military power. As the result, the employee training institution was also reorganized into the "factory youth school". In this way, the advance of the war-organization clarified a basic nature of the industrial education in Japan, i.e. "fukoku kyohei" and "shokusan kyoiku", and unified the training of skilled worker and thought education.

"Characteristics of the prewar vocational education"

As observed above, the task of prewar vocational education was to combine the formation of modern industry with the establishment of state organization. With such task, its historical characters were as follows.

The major object of vocational education was female workers in textile industry. They were emigrant laborers from poor farm homes, then under pre-capitalistic land system, sometimes even for decreasing household's food consumption. They needed supplementary education to primary school course which was generally incomplete, and so this constituted the main part of education. This character became more distinct in the period from the Taisho to early Showa Eras, faced with vigorous thought problem, taking forms of moral and cultural education.

The Taisho Era was a period when the Japan's capitalism showed rapid development and consolidated its ground for monopoly. Scales of enterprise and production were expanded and the cultivation of high class skilled workers by training was required. Enterprises of steel, shipbuilding, machinery and mining and military factories came to put weight upon skill training in their education systems. At the same time, partly due to the democratization tide after the World War I, the underlying friction between capital and labor came to the force. Training for foremen, as the leading personnels in works, was begun on such ground.

In this period, however, education for skilled workers and foremen was conducted generally as personal one. It was with the war-organization in the middle of the Showa Era that more systematic form became necessary either for training within-industry or vocational education. It was because in manufacturing male workers (mainly machine workers) came to surpass female workers by 1934, and since around this year the necessity of full scale cultivation of skilled labor grew rapidly, partly in connection with the military mobilization of labor power. However, as stated above, by this time the need for war had enforced "youth school" system, and a systematic development of vocational education could not be seen.

Against such background of historical characteristics, as already pointed out, the prewar middle level education system so worked that: (1) Only a small part of youths was covered; (2) Among the remaining majority of

youths, again only a small part received systematic training by within-plant institutions, while others were left to the poorly equipped complementary education, or training as apprentice, or to nothing; (3) The contents of vocational education given by any of institutions were the combination of thought and vocational education, its object being the establishment of the state.

C. Tasks and Facts of Vocational Education (2)

"Postwar state of vocational education for youths"

As the result of war defeat, the prewar combination between skill education and thought education was perfectly cut off. At the same time, the revealed inferiority in science and production techniques of this country disclosed basically the defect of prewar system, that is, the lack of systematic skill education for laborers.

Therefore, the first problem facing vocational education at present is the revival of employee education or thought education for the sake of industrial rationalization to be performed in face of strong resistance from laborers, who have strengthened their social power by the advance of labor unions. The second problem is under what system of science and skill education the shortage of technical staffs and workers is to be covered.

These two points are the focus of present discussions on manpower development. We shall first take up the second point, examining factual state.

Table 4 indicates the shortage of skilled workers by a survey of the Ministry of Labor. The number of workers in shortage amounts to over 1 million persons in 1964, of whom 80 percent are for manufacturing including metals, machinery, electrical equipment and chemicals. Such shortage has been resulted from the equipment investment competition 1960 to 61, extending over big as well as small enterprises. The Labor Ministry had established a long-range basic plan, in conformity to the Government's "National Income Doubling Plan", in which skilled workers of 3.25 million persons were to be brought up. However, its performances for 1961 and 62 fell short of respective targets, partly due to the rapid growth itself, and the plan had to be revised at the fall of 1962.

In principle the nation's system of cultivating skilled labor is constituted of three pillars, that is, public vocational training, within-plant training and school education. The standings of the first two, other than the school

Table 4. Shortage of Skilled Workers (1000 persons)

1958/Dec.	290
1960/Dec.	811
1961/Dec.	1,163
1962/Dec.	1,256
1963/Dec.	1,108
1964/Dec.	1,600
1965/Dec.	1,620

Source: Ministry of Labor

Table 5. Standings of Vocational Training, for 1962

Public vocational training	
Training by prefectural administration	persons
General training (for school graduates)	34,000
Training for employment change	
Night-hour training (for jobholders)	4,700
Training for ex-employees of Stationing Forces (U. S. Army)	2,400
Training by employment promotion bodies	
Bring-up training	11,000
Employment change training	7,000
Within-plant training	
Independent training	23,000
Corporate training	45,000
Total	127,100

Source: Survey by the Ministry of Labor

education, are shown in Table 5.

With a shortage of over 1 million skilled laborers, such standings of training are wholly insufficient.

The national policy of skill education for youths after the war set its principle on the protection from and supervision against exploitation by apprentice system for youth workers of below-18 years old. It started among others as a subject of supervisory administration under the Labor Standard Law, a part of modern labor legislation sponsored by the Occupation Force. The emancipation of skill education from such supervisory administration has been one of the objectives of the repeated requirements for education reform from the side of the industry, particularly the Japan Federation of Employers Associations. The vocational Training Act of 1958 was enacted to meet such clamor and to step into active cultivation of skill labor.

The Act was designed to separate clearly the administration of labor's skill from that of supervisory object and, besides, it was intended to enlarge public training establishments and, as for within-plant training, to give positive assistance to those establishments that can meet certain standards to be newly established as certificated ones.

The actual performances of the government's measures have been poor as seen, for example, in the position of government's expenditures for education. Table 6 indicates the standstill, or even declining, weight of expenditures in the hands of the Ministry of Education for recent several years. So is the case with the measures taken by the Ministry of Labor. Such lack of systematic vocational education can be seen in the positions for 1959, below Table 7, the year when the private equipment investments recorded a sharp rise (private equipment investment rate 17.3%, real growth rate 17.7%).

Among the attendants of the public vocational training in 1959, youths

Table 6. Relative Positions of Education Expenditures, National Income and General Administration Budget

	1955	1956	1957	1958	1959	1960
Administ. budget/National income	25.3%	23.9%	24.0%	25.7%	24.2%	24.2%
Education ex./National income	5.54 (5.09)	5.19	5.34 (5.76)	5.54	5.19 (6.16)	5.18
Education ex./Administ budget	21.9	21.5	22.3	22.0	21.4	21.4

Note: In parentheses, figures in America.

Source: Ministry of Education; op. cit.

of 15 to 17 years of age, equivalent to later period of middle school education, counted some 25,000 persons. Youths of the same ages receiving within-plant training certificated by the Vocational Training Act were 34,000 persons. Putting together, the number comes to a low of less than 60,000. As 780,000 persons of middle school graduates for this year entered employment, and half of them being into the secondary industry, it may be guessed that only a small part of industrial youth workers received vocational training in any sense. It is to be noted that the above figure of 60,000 persons includes not only the graduates of that year but also older ones, and so it may be well to say that most working youths of the secondary industry were left to daily job experiences to obtain skills.

Stillmore, when we give a wider view to the enrollment at educational institutions in general of 15-17 agers at the time, the poorness becomes more apparent, as shown in Table 7.

Table 7. Enrollment at Educational Institutions of 15-17 agers.

High school of daily system	(45.1%) 2,650 thousand persons
High school of hourly system	(7.6%) 430 thousand
High school of correspondence system	(0.3%) 18 thousand
Public vocational institutions	(0.4%) 25 thousand
Within-plant training	(0.6%) 34 thousand
Others	(3.7%) 215 thousand
No-education	(36.4%) 2,140 thousand
Total 15 — 17 agers	5,890 thousand

Source: Ministry of Education; "Susumi yuku Shakai no Seishonenkyoiku"
(Youth Education in Advancing Society).

Of total 15-17 agers, those receiving education in any sense account for only 60 percent, the remaining some 40 percent, numbering more than two million persons, are left to no-education. This picture is substantially same with that in those days of Taisho to Showa Era, when, as already presented in Table 2 School Career Composition, the overwhelming majority was the graduate of primary school alone, some several percent learned at middle school, and the substance of vocational education was a few number of within-plant establishments and supplementary vocational schools. In other words, systematic education is still wanting today.

Of 15-17 agers counting 6,000 thousand only 2,600 thousand, less than a half, have received formal course of later middle education, and of the remaining youths of more than 3,000 thousand only 60 thousand have taken vocational education. In such backwardness of the cultivation and utilization of manpower lies the core of the present skilled labor shortage, and also the background for the manpower development policy. The reality of the policy can be therein evaluated, still less in the light of declining education expenditures cited in the White Paper of the Ministry of Education itself.

The Ministry of Labor has increased the expenditure for vocational training from 3,700 million yen for 1961 to 5,900 million yen for 1962, in view of the foreseen shortage of skilled workers and the current state of training. But this can have few significance for the whole of national economy and education. The backwardness of our country is obvious if compared with other advanced nations, for instance Great Britain, where all of 15-18 agers who do not enter school or other educational institutions of daily system are obliged to attend any public education system one whole day or two half-days a week, for supplementary cultivation of individual's physical, mental and vocational ability to be required for bearing responsibilities as people.¹⁾

"Rationalization and the vocational thought-education"

The above descriptions have shown that the national education system of today is not essentially different from that of prewar days, and the vocational training for youths is still unsystematic and fragmentary. In contrast, the position of thought education has become utterly different from prewar one. Either in the national system or the within-plant system, through the war defeat and occupation it has come to be faced with conditions of quite different nature.

The "shushin" education, which had been combined with vocational education throughout prewar days, must be now eliminated from the school as well as within-plant lesson. The "shakaika" lesson, (social problems), replacing it, cannot cultivate such thought that primarily supports the systems of state and enterprise. Against the improved labor's social position, mere one-sided coercion or shouts from influential circle or entrepreneurs are powerless to move workers as they want. In addition to such peculiar state of enterprises in Japan, another moment has been carried in, in connection with the hastily introduced western, modern production techniques and organization. That is the so-called "human isolation by rationalization". These two moments, confronting themselves to the capitalistic principle of economization, have driven to difficulty the rationalization of production and management without being faced with resistance from the side of labor. Here, the idea or means of "human relations" has appeared on the stage for the purpose of softening labor's dissatisfaction. It has been materialized particularly into the foremen training under the so-called T.W.I. training form. Another effect of ration-

1) As for the state in foreign countries, a handy material is Nihon-shokugyo-kunren-kyokai, "Shokugyo-kunren-nenkan" (Yearbook of Vocational Training)".

alization is the demand for moral education beginning with the "Fearful School Texts" case, and blunt movements toward education reform including the two bills on education and the teachers appraisal system.

Anyhow, such social atmosphere of self-development of personal ability and that of cooperation to enterprises' rationalization could not be expected, so long as the steps are confined to dissolving labor's dissatisfaction and unrest into the personal problem of mind (human relations), or to reforming educational system along a line that would open the gate for state's intervention into the contents of education and harm its autonomy.

Another measure, being eagerly advocated, to give impetus to work-will is the reform of Japan's traditional personnel management system, such as life-time employment and the type of payment of wages according to the length of service and its modernization by the advanced system of personal merit rating. The National Skill Certification System, commenced in 1960, also has the same object as an outside-industry measure.

However, a reform of the personnel order founded on school career could bring about a dissolution of old regime by the possible birth of new elite personnels, but, if the reform is limited to simple adopting of ability-remuneration principle, it could not incorporate workers into a new "labor corporate" full of work-will. To attain this purpose, it is necessary that each individual worker gets to feel occupational responsibility on his own labor and, at the same time, his social responsibility within labor corporate.¹⁾

Such mental stimulus that would grow inner self-recognition of, so to speak, horizontal and vertical responsibilities cannot be born in the state of thought based on the present social system. Still less it is unthinkable that a national skill certification system based on the present vocational education system as above mentioned can be useful to any degree.

II. The State of Within-Plant Education-Training

A. Technical Innovation and the Direction of Within-Plant Education

"Changes in labor's positions by innovation"

The big expansion of private investment in equipment and the full development of technical innovation began in 1956. The shortage of skilled workers became particularly remarkable around 1960, when the technical innovation and equipment investment had been extended over medium-small scale enterprises and a further enlargement of production scales were intended by big enterprises of motor vehicles, petro-chemicals, chemicals and so on in order to cope with the foreseen international competition following the trade liberalization. Figures in Table 8 and 9 may illustrate such shortage.

The innovation has been, and is, proceeding generally along the lines of more continuance, automation and instrumental measuring of production pro-

1) The writer has discussed the problems of enterprise-regime and social responsibility more fundamentally in ("Ningennoryoku Seisakuno Shakaiteki Joken, Social Conditions of the Policy on Manpower Development") in the Mita Shogaku Kenkyu, Vol. 5, No. 6.

Table 8. Deluge Rates by Skills (in %)

	1957	1959	1960
Latheman	1.6	1.4	1.1
Finisher	1.5	1.4	1.0
Fitter	2.1	1.4	1.0
Polish worker	1.1	0.9	0.7
Sheet metal worker	1.2	1.3	0.8

Note: The deluge rate is the number of job-hunters divided by the number of vacants.

Source: White Paper on Labor, 1961.

Table 9. Rates of Fulfilled Job Vacancies by Skill Sorts and Classes (in %)

	1960			1958		
	Skilled	Semi-skilled	Unskilled	Skilled	Semi-skilled	Unskilled
Casting worker	48.8	32.4	51.9	41.9	57.3	72.6
Machine worker	43.2	48.1	47.2	59.6	62.0	60.2
Finisher	50.3	46.6	43.1	59.1	56.5	59.1
Machine fitter	36.4	42.6	52.4	54.7	57.9	52.9
Sheet metal worker	34.4	28.3	32.3	44.2	48.7	48.0
Press worker	33.3	42.3	46.7	48.7	58.6	48.8
Welding worker	66.3	52.3	44.0	69.8	70.7	59.1
Piping worker	9.5	43.9	38.3	35.0	57.4	51.0
Electricity worker	60.0	48.7	36.1	75.0	51.8	56.4
Electrical machine repairer	57.1	38.1	47.0	50.0	55.6	66.7
Radio-televi repairer	50.0	62.2	53.8	100.0	50.0	65.4
Vehicle adjuster	19.1	45.4	47.3	57.8	63.5	69.5
Plasterer	10.0	30.1	51.4	—	56.8	72.0
Carpenter	34.1	51.1	53.0	83.3	65.3	54.8
Wood worker	75.0	44.5	40.0	81.8	53.6	55.7
Paint coat worker	33.3	32.0	36.9	87.5	64.2	50.2

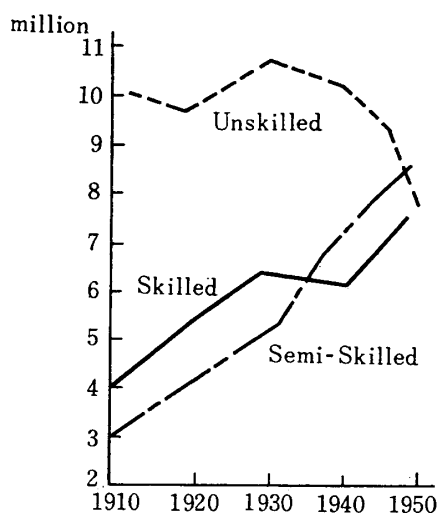
Source: "White Paper on Labor", 1961.

cesses. In iron works it has freed workers from hot and heavy works. In machinery industry, for example, one unit of specialized machine suffices to dig fifty holes in the armband of sewing machine, in place of five units of former multi-purpose machine. Continuance of machine process has been further developed into automation by transfer machine between processes. The most typical one of automation is the process automation in the so-called process industry with the feedback system on fluid volume, temperature or pressure as its essential feature.

Such advances of continuance, automation and instrumental measuring in production processes naturally widen the spheres of watch and control. Accordingly, knowledges on electricity, metallurgy and engineering as well as basic learnings on mathematics, physics and so on become indispensable. The technical progress does not make skilled labor unnecessary, but changes its

contents from sense and knack to scientific knowledge and technique. It points to unmistakable process of production to be guided by scientific procedure and operation. Laborers must have ability to realize and judge the contents of operations and production processes that are scientifically rationalized. Automation release labor from the functions of direct, physical work, but does not diminish skilled or semi-skilled labor. On the contrary, rationalization has caused decrease in simple labor and increase in skilled and semi-skilled labor. Such changes in the case of America is figured in Table 10, Table 11.

Table 10. Trends in the Number of Laborers by Skills



Source: From E. Krause; *Grundlagen einer Industripädagogik*, 1961, S. 27.

Table 11. Figures of the Chart in Table 10. (in persons)

	1910		1920		1930		1940		1950	
	Million	%	Million	%	Million	%	Million	%	Million	%
Skilled	4.3	24.1	5.5	28.1	6.2	27.7	6.0	25.4	7.8	31.9
Semi-skilled	3.3	18.8	4.4	22.4	5.4	24.3	7.3	31.0	8.6	35.3
Unskilled	10.1	57.1	9.7	49.5	10.7	48.0	10.3	43.6	8.0	32.8
Total	17.7	100.0	19.6	100.0	22.3	100.0	23.6	100.0	24.4	100.0

Source: *ibid.*

Technical innovation thus brings about new phases of labor, where new sorts of jobs are created and the customary job division is transformed. There, demands for such workers are naturally intensified who have techniques and knowledges to meet new pattern of production. To conform to the rapid progress of rationalization, basic learnings and skills as well as flexible sense are indispensable. This is the ground for the increasing demand for young skilled workers.

"Trends and performances of within-industry education-training"

As to the meanings of "skilled" or "semi-skilled", the definition in the

Survey of Demand-Supply of Skilled Labor by the Ministry of Labor is this: Skilled laborer is one with experience of over six years or one who has taken systematic training of one or two years and has similar grade of skill; semi-skilled laborer is one with experience of more than three years but less than six years, or one who has taken systematic training of one or two years and has similar grade of skill. That is to say, "systematic training of one or two years" is deemed to match "experience of more than six years" (in the case of skilled) and "experience of more than three but less than six years" (in the case of semi-skilled).

According to a testing by the Ministry of Labor in 1956, the comparison of the scores gained by trainee workers in the 3rd year class and those by general workers classified by experience was as is shown in Table 12.

By the result, systematic training of three years appears to match experience of about eight years largely. The Survey Report on Training of Skilled Laborers in Japan, published by the Japan Productivity Center, has taken that the skill after three years' training equals to experience of seven or eight years. So, as most courses of within-industry training are of three years' term (in some cases two years), those who have completed within-industry training will grow up to skilled workers after one or two years' experience. Truly, although the second class test of the National Certification System is to be applied to grown up laborer, the qualification being completion of public or certificated training, in actual the candidates for test are expected to be those with one to two years' practical experience. To cite

Table 12. Distribution of Scores in a Skill Testing

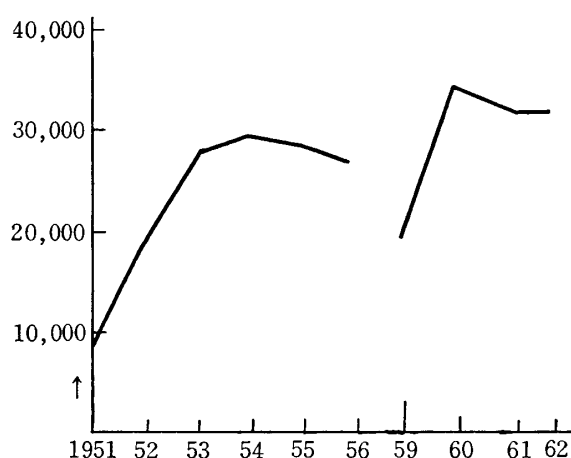
	Trainee in 3rd year	General Worker (by years of experience)							
		2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10
0— 50		1	6	5	2	1	1	3	
51—100	6	0	5	5	3	6	3	4	
101—110	1		1		2	1		2	
111—120	4	1			1	3		2	
121—130	5		1	5	1			1	
131—140	4		1	1	1		4		1
141—150	6			3	1	1		1	
151—160	7					1	2	2	1
161—170	1		2		3	3	3		1
171—180	2					1		1	
181—190	2				1	1		1	
191—200	5			1		4	2	1	1
Total members	43	2	16	20	15	22	14	18	4
Total scores	6,168	146	1,283	1,985	1,768	3,049	2,036	2,046	663
Average scores	143.7	73.0	82.2	99.3	117.9	138.6	145.4	113.7	165.8

Source: Japan Productivity Center & Japan Skill Training Association; "Ginokyoiku-Kokunaishisatsudan-Hokokusho" (Survey Report of Skill Education in Japan).

another instance, the general training by the public establishments is divided into basic training of one year and specified training of two years. However, by the operation plan of the Ministry of Labor for ten years 1960-69 the project numbers for 1962 are 69,000 persons for basic training and 15,000 persons for specified training. So, the main of the public training is supposed to be one year course, and its graduates may be ranked as semi-skilled workers with two or three years' experience.

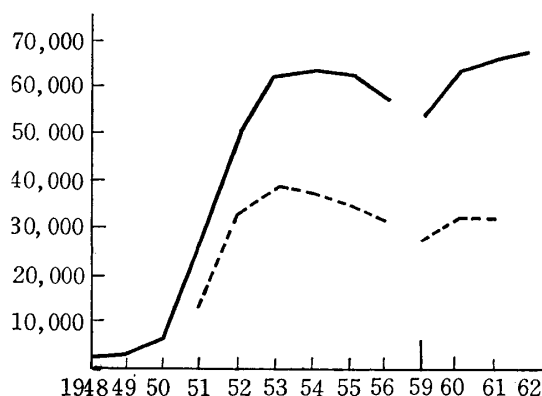
Thus, the performances of within-plant training can be well appreciable. The above mentioned Survey Group has also expressed satisfaction about this point.¹⁾

Table 13. Number of Institutions Carrying Skill Training



Source: Prepared by "Ginsha Yosei Jokyo Kaisetsu" (Positions of Skill Training), Ministry of Labor, up to 1956, and by "Shokugyo-Kunren-Nenkan" (Year Book of Skill Training) and "White Paper on Labor" for the Later Years.

Table 14. Number of Trainees and Instructors



Source: See Table 13.

1) Japan Productivity Center & Nihon-ginsha-yosei-kyokai (Skilled Worker Training Association): op. cit.

Anyhow, the public vocational training and industry training in business are the mother's body for supplying skilled workers. As already stated, state's systems are very poor. For instance, of 390 thousand graduates of middle school who formally applied to employment security service in 1961, only 18 thousand entered vocational training institutions; as to graduates of high schools 1.7 thousand among 480 thousand persons. With such state of public training, the cultivation of skilled labor on government's base is hardly to be expected, and enterprises must carry the task by themselves.

We can see two rising waves in the trend of industry training in business, as is figured in Table 13 and 14 above.

The first wave appeared in 1953-54 when big enterprises set about rationalization, that had reserved necessary fund through the Korean and Special Procurement booms.

The next wave began around 1960 when the shortage of skilled labor became decisive, due to a situation that monopolistic enterprises, that had already consolidated their ground of rationalization, came into building foothold for international competition and, in accompany with this, technical innovation began to extend over medium-small enterprises.

The first wave turned downward after 1953. The decline in the number of trainees was remarkable mostly in, so to speak, "environ" industries, including tailor, carpenter, baker, joiner and dress maker, hence in medium-small businesses. Contrarily, the number in trunk industries showed a growth, as seen in Table 15.

Table 15. Changes in the Numbers of Trainees by Industries and Scales, in percentages changes 1955 to 1956

Share of trunk industries	3.0%
By business scales:	
With under 1,000 workers	-14%
With over 1,000 workers	8.6%

This illustrates that big businesses had been making steady steps toward rationalization, and that the first wave had a different nature from the second one backed by technical innovation.

The state in 1959, the year the second wave began, was quite different. The numbers of trainees in textile, furniture, home appliance industries and the like were decreasing (though still numerous), while those in transport equipment, machinery, metal goods, electrical equipment and steel manufacturing were on rapid increase.

For example, trainees for tailor numbered 9,500 persons in 1956 but dropped to 8,500 in 1959. In contrast, those for electric circuit worker, machine worker, machine adjuster, finisher and casting worker grew from 8,000 persons altogether in 1956 to 18,000 persons in 1959, those in transport equipment counting 6,000 persons.

The increase was marked in big enterprises that carried own independent

training (as against corporate training in smaller firms). As for independent institutions, the average of trainees counted 20.3 persons and trainers 7.3 persons in 1956, but they increased by 1959 to 60.8 and 21.9 persons respectively.

B. New Directions of Within-Plant Education-Training

"Curriculums of Employee education-training"

The criterions for certificated vocational training have been settled as follows by the Vocational Training Act of 1958. The term is usually to be three years. Knowledge lessons are divided into general and specialized ones, and practice lessons into basic and applicative. General knowledge lessons are to be studied in the 1st year, and in the 2nd and 3rd years specialized knowledge lessons are offered as theoretical bases for practice. Basic practices are conducted off the job in group, and applicative ones are given through actual workings on the job according to prescribed schedules.

Table 16. Hours for Officially Settled Lessons

	1st Year	2nd Year	3rd Year	Total
Knowledge lessons	450	360	280	1,080
Practice lessons	1,360	1,440	1,520	4,320
Total	1,800	1,800	1,800	5,400

Figures in Table 16 present only the minimum standard line. In most actual cases the hours are exceeding by 20 to 30 percent over this line. Emphasis is being placed on knowledge lessons rather than practice; in early years basic knowledge lessons including mathematics, physics, chemistry and English, and in later years respective specialized knowledges. Two examples of the allocation of hours are given in Table 17 and 18, one in a electrical equipment factory with employees of more than 4,500 and another in a ship-building company.

By the official standard of the Law the proportional ratio of knowledge and practice, in aggregate through 1st and 2nd years, is 1 to 4. In the elec-

Table 17. Lesson Hours in an Electrical Equipment Factory

	1st Year	2nd Year	3rd Year	Total
Knowledge lessons				
General	560	343	155	1,058
Specialized	369	408	277	1,054
Sub-total (A)	929	751	432	2,112
Practice lessons				
Basic	670	380	300	1,350
Applicative	651	1,119	1,518	3,288
Sub-total (B)	1,321	1,499	1,818	4,638
Total (A + B)	2,250	2,250	2,250	6,750

Table 18. Lesson Hours in a Shipbuilding Company

	1st Year	2nd Year	3rd Year	Total
Knowledge lessons				
General	640	560	320	1,520
Specialized	200	280	240	720
Sub-total (A)	840	840	560	2,240
Practice lessons				
Basic	595	451	234	1,280
Applicative	455	599	1,096	2,150
Sub-total (B)	1,050	1,050	1,330	3,430
Total (A + B)	1,890	1,890	1,890	5,670

trical works in Table 17 it is 1 to 2, and in the shipbuilding company in Table 18 it is 1 to 1.5. And, within knowledge lessons the general and specialized are almost equal in Table 17, and the former account twice the latter in Table 18. The general lesson is deemed essential. The hours for general knowledge lessons, counting 1,520 hours for three years, are divided into 220 hours for social problems, 500 hours for mathematics, 200 hours for physics and 200 hours for English, suggesting that the cultivation of power to realize and judge makes the main objective.

Such emphasis on knowledge rather than practice, and general lessons rather than specialized ones, is based on the fact that the rapid rationalization of production and management, extending over production processes as well as office works by way of punch card system or electric computer, does not allow standstill of vocational skills. Today's skills may possibly become useless tomorrow. Hence, such words of a training director are proper; "Ready usefulness after training is not our intention."¹⁾

The principal objective of within-plant education-training today is to bring up flexible ability to cope with technical progress by affording basic knowledge and skill.

"Present problems facing employee education-training"

Now, two problems are arising in within-plant education on the basis of the above stated backgrounds. The one concerns the form and the other the contents.

It raises a problem that the form of "school" is increasingly taken in industry training in business. The above explained emphasis on knowledge, especially on basic knowledge, rather than practice naturally has brought about group schooling. Also on the side of instructors, or trainers, theoretical knowledges are more required as compared with the case of engineers' side-work in factory. Specialized instructors have become necessary, and some

1) Words of Director Wagatsuma of Origin Electricity Technical School. K. Shigematsu; "Sharitsu Gakko" ("Company School"), in *Jiyu*, March, 1938.

numbers of employees must be specialized in education. Already in 1957 the Nagasaki Yard of Mitsubishi Shipbuilding Company was holding 28 members of teaching staff. Such changes in the "education" have given birth to within-plant schools, or company schools, here and there. In some European countries as Britain, France or Switzerland, it is provided by law that practical skills are to be acquired in workshops and knowledge lessons by attending convenient local schools in the working hour. Thus, Industry Training in business is fused into the social system. In Japan such connection between with-plant education and the social system is seen only in trainees' spontaneous learning at high schools of part-time system, and in a few cases of cooperation between works and industrial schools, for instance, Kobe-shiritsu-Sangyokoko (Kobe City's Industrial High School) and Hanshin-Nainenki-Kogyo Co. (internal combustion machine maker), Tsurumi-Kogyokoko (industrial high school) and Tsurumi-Seitetsujo of Nihon-kokan (iron works and ship-building), and Numazu-Kogyokoko and Shibaura-Kikai-Seisakusho (machinemaker).¹⁾

Such connection, however, is not common. One problem underlying is the qualitative level of the part-time high school, while attendance to daily system school is hardly favored by employers who are paying to trainees. Eventually employers establish the "school" system within their own business. Presently (as of October, 1958) 39 establishments for within-plant training are being run under a variety types of school system. These are, so to speak, company-established or within-company schools, though not in the form of juristic person. In some cases, for instance, the High Faculty of Maruzen-Sekiyu-Gakuen (school of an oil refinery company), graduates are not obliged to enter the company.

The emphasis on basic knowledges, in accompany with the intensified nature of labor as controlling and measuring, is working to bear a new trend of employment, that is, to employ high school graduates rather than middle school graduates as workers. It is also intended to render to employed high school graduates such education that matches to respective enterprises' businesses, and that with a level of short-term university (course of two years). Representative ones of institutions for such intention are Hitachi Kogyosenmon (industrial high) School, Toshiba-Gakuen-Kogyosenmon School, and Special Faculty of Maruzen-Sekiyu-Gakuin. Beside these private enterprises, a few public corporations in need of rapid innovation, e.g. Telegram and Telephone Co. and National Railway, are giving education in their own schools.

Another problem born from the emphasis on basic knowledge and skill has a relation with the just mentioned first problem, i.e. the "school" form.

Under the form of school, trainees receive, not to speak of education, living expenses, pay and even housing. They are, so to speak, under "full provision", and, completing the course, almost all enter respective companies.

Such vocational education, being separated from social environments

1) Ref. Prodochosa-kyogikai, ed. "Shokugyo-gijutsu-kyoiku-to-rodosha" (Skill training and laborer), pp. 168-171.

and generally under boarding system, would cultivate the best nurture base for the "attachment-to-enterprise" consciousness, the more so because of the Japan's peculiar closed labor market and within-enterprise labor union.

The boarding living would spontaneously rebirth the connection between skill education and thought education, that had been once cut off with the war defeat. Here, life directing is being thoroughly carried on the ground of boarding through various events of group living. In other words, the "human-relations" on the base of the full-provision education are acting as binding agent for consciousness and moral toward enterprise, in place of the old "shushin" lesson.

The status of trainees in such school system is nonetheless generally company's employee. Then employee status of these apprentices is provided in 22 ones of 39 within-training institutions being run in 1958. Nevertheless in most cases they are not union members, and, if they are included into unions rarely their treatments are provided in labor agreements. In America, where labor agreements traditionally cover details of labor conditions, provisions with trainee workers are also detailed including hiring, discharge, pay for each school year, vacation with pay and so on. In Japan such agreement is very few, with some exceptional cases as Zendentsu (All Telecommunication) union, Kokutetsu (National Railway) union or Doryokusha (Engine-Drivers) union.

Accordingly, through the training period, the "attachment" consciousness penetrates into the fresh sense of juniors smoothly. The training being thus separated from social union-management relations, even the National Skill Certification System, essentially to be a social system, is failing to grow wide-crossed labor markets, and is only serving to foster grateful mind of trainees who have passed the test to their respective training institutions, hence their loyalty. The consciousness and pride that they are the employees of, say, Hitachi Co. or Toshiba Co. precede those as, say, lathemen. With these mental circumstances they will become in future trunk laborers of each firm and form the group of future ranking workers.

The life-time employment system and the within-enterprise labor union are affecting strongly to hide the problematic character of within-plant education, in so much that retarding problems do not rise to the surface as those of labor organization.

In any event, within-plant education is affording skill training by way of school system, while carrying life directing through boarding system. This implies that "human-relations" are therein successfully performing their part of bringing the kernel, skilled workers for reorganizing the regime in enterprise.

By the way, it is the task of "foremen" to fulfil the demand for technical rationalization in works, and to organize workers in line with enterprise's objectives. But, at the same time, they themselves are being exposed to arising disturbances in the enterprise regime derived from rationalization. They foremen are, as the forefront supervisors in workshops, the immediate players of the modern role of "human relations" just explained.

III. Foremen Training and Human-Relations

"Life education as human-relations"

Within-plant training must be closely connected to life education. For a fruitful skill education, matching ground of life education must be consolidated. Good occupational being must be also good social being.

As we have above pointed out, the boarding system of within-plant training is providing a ground for life education. Here we shall illustrate some concrete ways of life education.

Table 19 shows the yearly schedule of educational events in a manufacturing company. Schedules of officially certificated institutions are more or less alike with this example.

Table 19. Schedule of Training Events in D Company's Training Institution

April. (1st decade) Entrance ceremony for new trainees, and round-table talk with their parents. Providing accomodation goods to 1st year class and directions for boarding. (2nd decade) Beginning of learning and practice. (3rd decade) Measuring of body weight.

May. (1st decade) Beginning of inter-class contest (lasting to the end of November). (2nd decade) Spring excursion. (3rd decade) First communication to homes.

June. (1st decade) Round-table talk of 1st year class. Expiration of trial period, formal employment, writ of employment. (2nd decade) Interim examination of the first term. Round-table talk in workshops.

July (1st decade) Events of National Safety Week. Seeing or rooting at the inter-city baseball match meeting. (2nd decade) Personal directing for 1st year class. (3rd decade) Personal directing for 2nd and 3rd year classes. Second communication to homes.

August. (1st decade) Swimming training and round-table talk on living (1st year class). Supplementary lessons on English and mathematics. (2nd decade) Summer vacation-returning homes. (3rd decade) Round-table talk in workshops.

September. (3rd decade) Health examination. Term-end examination.

October. (1st decade) Third communication to homes. Athletic sports contest of the institution. (2nd decade) Educational tour for 3rd year class.

November. (1st decade) Autumn excursion for 1st and 2nd year classes. (2nd decade) Attendance to the Trainees Recreation Gathering. (3rd decade) Round-table talk in workshops.

December. (1st decade) Interim examination of 2nd term. (3rd decade) Round-table talk of graduates. Inspection address to the president if company. Year-end meeting of self-reflection. Winter vacation.

January. (1st decade) New year address. (2nd decade) Personal directing for all classes. Fourth communication to homes. (3rd decade) Participation to "marathon" race.

February. (3rd decade) Technical skill examination.

March. (1st decade) Determination of job sorts for 1st year class. (3rd decade) Observation at other institutions. Graduating ceremony. Year-end ceremony for 2nd and 3rd year classes. Fifth communication to homes.

Remarks:

(1) Pre-employment education: Life directing begins before actual employment, as soon as the hire is determined. Company's internal report is sent every month, or essays on impressions are requested, in order to grow attachment mind to the company as a mental preparation for entrance.

(2) Home visiting and communication: Since cooperation on the side of trainees' homes is indispensable for sensitive juniors, home visiting or alternatively home communication is held to maintain close connection with homes, concerning report

of performances as well as life directing. In some cases Parent and Teacher Associations are incorporated.

(3) Recreation: Educational tour, factory inspection, hiking, swimming, "zen" meeting at temple and others are held as group recreation, for cultivating good feelings among trainees themselves and humanly connections with instructors as well.

(4) Emotional education: Beside group events above, for the emotional growth of individuals, accomodation of library, entertainments by motion picture or music and the like are taken into consideration.

(5) Autonomous activities: In order to cultivate the spirit of independence, control of living conditions is left to the hands of each year class. Autonomous activities are to be displayed in the board festival or circles of sports and various amusements.

(6) Diary of living: Reports and impressions on lessons, practices and living are to be composed on diary, as a material for finding out problems on training.

(7) Trainee's handbook: A handbook is delivered to every one presenting preparations for lesson and practice, orders for clothing, moral teachings and rules for autonomous activities.

Beside the above, guidance for details of daily living is being carried including regular health examination and encouragement of saving, to the extent that cannot be seen in general high school education.

In this way, trainees take vocational education, receiving boarding, pay and supplies for education. To completers of the course, after a certain years' practical experience, gates will be opened to staff employee or ranking worker. Socially they obtain the qualification for the National Skill Certification test.

In Table 20 below, an example of the standard of promotion is shown, dividing trained worker and other worker.

The numbers of trainees for a year are generally several tens to one hundred. Of course such numbers are insufficient to meet the need for the growing economy. The trained workers form the kernel with skill, numerous number of temporary or extra laborers surrounding them. It is the task of foremen to build up these trained workers to the company's trunk laborers

Table 20. Standard of Promotion in a Company (service years)

	Condition for Promotion	Trained Worker			General Worker		
		Short	Normal	Long	Short	Normal	Long
3rd rank koin*	Duration of 3rd rank koin " of 2nd rank koin " of 1st rank koin	Completion of training	"	"	Hire	"	"
2nd rank koin					1	1	1
1st rank koin					1	1	1
High rank koin	" of high rank koin	2	7	14	3	3	3
3rd rank koshu*	" of 3rd rank koshu	3	6	10	3	10	18
2nd rank koshu	" of 2nd rank koshu	3	7	10	3	7	12
1st rank koshu					5	8	—

Note: *"koin" and "koshu" are of the same meaning in general, but specifically used here to denote low and high class of worker.

Source: Ginokyoiku-Kokunai-Shisatsudan-Hokokusho, appendix number, p. 144.

through actual working. In addition, foremen of Japan today are responsible to guiding these untrained temporary workers and, at the same time, to incorporating these two kinds of labor with different nature to put them in the order and flow of the enterprise.

“Problems facing the current foremen training”

In view of the above explained changes in the composition of labor, i.e. the coming of skilled junior laborers, being educated emphatically to fundamental knowledges in school-like system, and the increasing employment of high school graduates as factory laborers, it is obvious that the re-education of foremen, or top-men of workshops, who are charged to put these owners of new skills and knowledges into actual workings, comes to the surface. It is the more so because in Japan most foremen or topmen are those who have gained the rank owing to the length of service. This fact is illustrated in Table 21, the composition of foremen by the length of service in a manufacturing company, being contrasted to the case in Britain. In the Japan's company all foremen are senior employees servicing more than fourteen years, while in Britain senior men are alike the majority but not so overwhelmingly.

Table 21. Comparative Composition of Works-Leaders by the Length of Service in Britain and Japan

Years of Service	Britain	Japan (in a chemical company)
20 years & above	53%	36 persons
15 — 19 years	12	33
14 — 0 years	24	1
Total	89*	70

Note: *The residual is uncertain.

Source: For Britain, T. Ouchi; “Obei-ni-okeru-genbakantokusha-shido-no-kenkyu” (Study on Shops Supervisor in Europe and America) p. 273.

For Japan: Ginokyoiku-Kokunai-Shisatsudan-Hokkokusho.

The effects of technical innovation and managerial rationalization today upon foremen may be summarized into two points below.

First, as a qualification to be a foreman, the ability of administration and organizing become very essential. Technical innovation points to transferring the ability to work from human producer to equipment and machine. The automation in machine and equipment, being combined with mass production system, has been further developed into the continuation of production processes. The mass production on the base of automatized processes requires precise calculation of the flows of materials and labor.

It follows naturally from this that the ability of administration and organizing becomes the most essential feature of the qualification as foreman, in place of the skills based on experience or seniority. Stillmore, the enlarged technical unit of production and resulting swelled enterprise's organization are working to dissolve customary functions of foreman into separate, independent staff divisions. Customary foreman's functions, such as data control, quality control, cost control, safety control, hire and discharge of subordinate workers or wage rates, are now being charged by respective staffs. Foreman's new

task lies in the relation and connection with these staffs of control divisions. Contact with these divisions must be made on the realization of the whole system of enterprise and production. Ability of controlling and organizing in such sense is required to foremen.

Table 22 presents the contents of training to foreman candidates in a electrical equipment company and Table 23 those in a steel work company.

In addition to basic scientific knowledges required to cope with new techniques, ability of administration is indispensable for new production system.

The second point of influences of innovation to foremen is that the selection, build-up and re-training of them are made from a view-point of long-run personnel planning. The combination of automation and mass production

Table 22. Lessons for Foreman Candidates in an Electrical Equipment Company.

Lessons for common culture (12 hours)	
(Subjects) Situations of the industry and the company's position. History and future of the company. Regulations of working. Labor laws. Organization of the company and responsibility of foremen. Mental attitude of fore-front supervisors.	
Lessons on control (20 hours)	
(Subjects) cost control. Materials control. Workshop control. Quality control. Control of subordinate persons. Safety control.	
Lessons on techniques (14 hours)	
(Subjects) Analysis of product failures. Knowledge of drawing.	
T.W.I. (20 hours)	
(Subjects) How to guide works. How to improve works.	
Inspection of factories (4 hours)	

Source: Shokugyokunren-nenkan (Year book of Vocational Training) p. 202.

Table 23. Lessons for Foremen in a Steel Company

Basic Learnings		Lessons for Control	
National language	10 hours	Quality control	15 hours
Mathematics	18 "	Heat control	15 "
English	12 "	Safety control	15 "
Mechanics	15 "	Process control	10 "
Physics	16 "	Cost control	10 "
Chemistry	15 "	Personnel management	10 "
Drawing	10 "	Health control	14 "
Electrical machinery	15 "	Social problems	5 "
Steel industry in general	15 "	Training on control	30 "
Total	126 "	Total	124 "

Source: See Table 22.

is possible only on the base of big scale investment, and so a mid-way revision is very difficult. It is all the more difficult because today basic production lines of a parent factory are founded on systematic programs of part goods production in many linked or relating enterprises. Such mechanism of modern production enterprise has brought about the rationalization in sales sector in the form of demand forecasting or marketing, eventually leading to long-run planning in the whole business. Training must be planned and exerted in conformity with such long-run business planning, especially with personnel planning.

In such situation even trunk staffs of high and middle classes must take learning on advanced management techniques. A problem here is that the recent rapid expansions of many enterprises have given birth to various "job classes", without affording sufficient time to arrange organization in line with systematic plans. This is the reason why most ranking workers today are those who have not received necessary training for their jobs. The foremen training up to present has a meaning of supplementary education to fill such gap.¹⁾

Under such a composition of laborers as stated above, with the core of trained workers and surrounding temporary workers, junior workers make the subjective body of labor power. Foremen training has been pointing to the problem of managing these junior workers. The T.W.I. system of foremen training has been carried since around 1948 for early ones and since 1951-52 generally. It is because the pressure of labor unions and the defect in employees training, being caused by the separation of moral and skill education, have been wrinkled to foremen who hold direct contact with workers.

Hereafter foremen training must be exerted under long-range planning, with the ability of controlling and organizing as its main contents. And, the form of training must be such that conforms to the actuals of each enterprise, not confined to mere typical ones. It will be promoted as one of the two pillars of inside-business rationalization, that is, wage-payment system based on the job evaluation as material pillar and education-training as mental pillar, in close connection with the pace of rationalization in Japan's economy.

IV. Conclusion

Formally the vocational skill education in Japan is systematized as school education, public training and within-plant training.

The connection between the three, however, is not organic, excepting

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- 1) Yawata Steel Co. established an Training plan in 1960 including: (1) Inducement training; (2) Introductory technical training; (3) On-the-Job*Training for four years after entrance; (4) First-term specialized job Training; (5) O.J.T. for five to ten years after entrance; (6) Second-term specialized job Training; (7) O.J.T. for ten to thirteen years after entrance; (8) "kocho" (foreman) Training; (9) Training to support "sagyochō" (work-top); (10) Training for "sagyochō" candidates; (11) Training for "sagyochō"; (12) Study course for "sagyochō". Under such long-run plan, it is intended to select and train workers in line with the job system.

the case that medium-small scale enterprises are relying on public system for their corporate training. An organic combination between school learning and workshop practice, the so-called sandwich system, cannot be seen in Japan.

This means that the vocational skill education is not yet established as a social system. As the result, generally big enterprises are carrying their own institutions under school-like system, with the nature of closed establishments.

Most of middle school graduates each year enter medium-small enterprises that cannot afford to exert systematic training, leaving it to workshop experience alone. Even among the employees of big businesses, only a small portion can receive the above said closed education. All in all, opportunities for vocational education are shut to most youth workers.

Such defect in training as a social system is reflecting itself also in within-plant training. Although some of middle school graduates are being benefited by sufficient education under "full provision", temporary workers, being as numerous as regular employees in such cases as electrical equipment or auto industry, receive no training. And, major part of within-plant education is that for middle school graduates, others being mere short term training to high school and college graduates of only three to six months. Training for high school graduates will make a problem henceforth since these will be increasingly employed as workers, although formerly they were put aside of the problem of training, except some entrance training, namely with college graduates.

After all, also in within-plant training, only a small part of middle school graduates are receiving training, and some of foremen or topmen are taking supplementary training. Remaining mass laborers are being left at most to skill lectures or contests such as "soroban" or other office skills.

With the system being so confined to partial group, the National Skill Certification has been enforced as a social system, and such personnel management based on job-evaluation and merit rating is being introduced. Mass laborers will hold displeasure at the situation sooner or later.

Against these background, such human-relations activities as counseling, morale survey or suggesting system will be further promoted in conformity with the actuals of Japan's enterprises. Also cultural and athletic activities such as shows of films and music records, painting exhibitions, "haiku" meetings as well as various sorts of sports, that have been hitherto mere circles' amusements, will be given in future a new meaning and significance as human-relations. It is questionable, however, laborers' dissatisfaction derived from social defects can be cured by "human-relations" that may be no more than a personal, mental solution.