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THE QUALITY OF WORK LIFE IN JAPAN

—A LOOK BACK AT 1973

ROBERT H. GUEST

Professor of Organizational Behavior Emeritus
The Amos Tuck School of Business Administration Dartmouth College
Hanover, New Hampshire USA

This report is based on a series of observations made by the author in November, 1973 as part of an eight month world study tour on a grant from the Ford Foundation to study problems of work alienation in the automobile industry. The author spent one month in Japan. He visited plants of all of the major automobile companies and talked with leaders of management, with labor leaders and certain university researchers, over 75 altogether.

This report is based upon a large number of interview notes and was originally written up in June 1974. It is hoped that the reader will find interest in comparing the situation at that time with 1983. Nothing has been changed by the author from his original notes and no new material has been added since that time. Any errors of facts or interpretation are the author's responsibility.

The Report has 10 parts

- Part A Response to General Questions
- Part B Conditions of the Culture
- Part C Wage Systems, Incentives and Fringe Benefits
- Part D The Labour Market and Special Issue of Youth
- Part E Labour Management Relations — Goals and Actions
- Part F Level of Technology on Japanese Assembly Lines
- Part G Intrinsic Characteristics of Assembly Line Jobs
- Part H Programs for Motivation and Job Satisfaction
- Part I Creativity and the Work Team Concept
- Part J Honda — A Special Case

Part A Response to General Questions

Two basic questions were asked in the world trip. They were:

Is there a problem of work dissatisfaction or work alienation among auto assembly line workers?

If there is, what is being done about it?

Almost all persons interviewed in Japan during this period (November 1973) agreed that there were some problems of job dissatisfaction or work alienation among assembly line workers. But the issue is not isolated. It is linked to Japan's current labour shortage, to rapidly expanding production and to changes in the culture patterns especially among youth.

A number of recent studies indicate that there had been an increase in job monotony and that assembly line workers showed a higher rate of job dissatisfaction when compared with other occupations and industries. Absentism and turnover was higher on the moving lines at Toyota, Isuzu and others compared with those on non-moving lines. Nevertheless, absenteeism and turnover in these occupational groups in Japan were comparatively lower than those found in the U. S. A., Scandinavia and other European motor car countries.

What Management Says about the Issues

Japanese managements agreed there was a problem but did not feel that dissatisfaction with the intrinsic job was as important as solving the broader problem of labour shortages. They did feel that it was necessary to change the general work situation on the factory floor to attract workers. For this reason most companies have initiated elaborate worker participation programs which will be discussed later. They did believe that work alienation could become a serious problem in the future. Manager of three plants said that it could become especially acute among younger workers who had higher aspirations and who would resent monotonous work.

What the Unions Say about the Issues

Top union officials in Japan took a much stronger position. They stated that more should be done to "humanize work" in the future.

Ichiro Seto, General Secretary, International Metal Workers Federation of the Japan Council made the following observation :

"The problem is not serious now because of the labour shortage, but it will become a problem. Japan may be better off than the United States or other countries because Japan is expanding so rapidly and the wages are at a very high rate. In Japan the younger workers will be looking to the future and they will not be willing to live in the environment typified by the automobile assembly line. At the present time, workers as young as 25 years old are finding themselves being promoted and transferred because of what seemed to be unlimited job opportunities, but this may be ending.

This December we are sending a team from the IMF to Volvo to see what is being done elsewhere. More and more jobs are becoming

standardized. The unions in Japan are calling for more humanization of the job environment. As a union, our first priority is to deal with problems of wages and welfare and problems of trying to equalize wages in other industries. Also those of us in the top positions are concerned about multi-national companies and how they will affect the Japanese workers. Nevertheless, in our council meetings we are coming to discuss more and to bring to the attention of management, the humanization issue.

The head of the Enterprise Union at Daihatsu said that the problem is becoming very serious because management was arbitrarily increasing and changing line speeds.

The greatest concern was expressed by Ichiro Shioji, President of the Confederation of Japan Automobile Worker's Unions. He not only expressed deep concern about the work alienation issue but was equally concerned about avoiding simplistic solutions. Among his comments were the following :

"This year one of our main policy statements to the workers and the Japanese industry is the need to provide human dignity to work and to tackle the work alienation issue. We regard it as extremely important. We have told management that it is their responsibility to take some action. The issue itself is extremely difficult to define and even more difficult to solve, especially on the high-speed assembly lines, where the technology is fixed. When it comes down to the question it revolves around feelings and emotions and motivations of individual workers. Individuals differ and it is not appropriate that we think in terms of institutionalizing programs for all workers when the issue is so deep in the psyche of the individual worker. We are considering it very seriously. If there are to be experiments, we have the problem of educating workers and of preparing the workers for experiments. We are now discussing these issues at the enterprise (company) level. Workers feelings are also affected by the fact of a difference between educational levels (which are increasing) and the levels of skills that are required. The questions are also tied in with our present wage system which, unlike the U. S., is not based upon pay for a particular job classification, but it includes differences based upon the amount of education of the individual and even more important the length of service. In the future the issues of wages and other material value questions will be changing. In the future it will no longer be adequate to deal with the material value questions, but we will also have to face those values which go beyond the system of business as such."

Mr. T. Miyajima, President of the Honda Motor Company Union, made

some further observations :

"I have worked on the line myself and am convinced that there is no basic difference whatsoever between the feelings of American workers and Japanese workers. The task is dull, repetitive and a man always feels that movement of the line. The difference may be, at least at Honda, the fact that there is frequent mobility from one job to the next. A worker knows from the time he starts on the line that this will not necessarily be his whole life career. If he has interest and ambition, he knows that the company will provide opportunities. I would also observe that there are some workers who do not especially mind the moving line, but this may be more the exception. Nobody likes to stay on the line very long."

During 1973 the Confederation of Japan Automobile Workers Unions published its major policy guidelines and the first policy priority was given to the alienation issue and "Pursuit of the Value of Work and Life."

What other observers had to say about the issue

A number of Japanese scholars are interested in the quality of work life question. In the opinion of Professor Shin-ichi Takezawa of Rikkyo University, the basic issue of the quality of work itself is similar to other industrial nations. He and others stress the fact that rapid industrialization in Japan, as reflected in the automobile industry, has brought about conflicting values among the generation of work groups. Older workers are concerned about economic questions and basic employment security, "whereas young workers nowadays may sincerely aspire for an opportunity for self-realization." In later sections the special issues of culture changes and the role of youth will be discussed.

Changes in job design itself, an observation

Given varying degrees of expressed concern among labour, management and others regarding the work alienation issue, there is little indication that the Japanese automobile industry, with a few exceptions, intends to make revolutionary changes in assembly line technology other than increased automation. Japanese management has looked at the experiments at Volvo and in other locations and appears to be convinced that fundamental changes in technology, involving the elimination of moving lines, is not acceptable to Japanese industry. The present investment in high speed production with a relatively low profit margin precludes any major overhaul in the system. This point of view of Japanese management is not unlike that of the American motor car industry nor indeed any of the plants in the world producing at rates of from 30 to more than 100 cars per hour. Japanese manage-

ment put much greater stress on gaining greater involvement of workers in the decisions making process, for greater involvement in suggestions systems, in creating communications mechanisms among workers and between workers and management, in housing and other elaborate external recreational programs. And although the Japanese labor leaders constantly stressed the need for greater "humanization of work" none seriously suggested that it would be possible for Japanese management to alter the basic technology of automobile production.

Part B Conditions of the Culture

The entire subject of work alienation must be put in the context of some special cultural characteristics of the Japanese. It is especially important to understand these characteristics in order to explain why managements as well as the unions adopt the course of action they do in addressing the basic job satisfaction question.

Takezawa in a review of industrialization in Japan points out that in three short decades since World War II Japan has experienced three stages. The first stage was that of maintaining conditions of bare subsistence followed by the second stage of concern with material achievement and emphasis on productivity, industrial engineering and efficiency. The third stage was that in which human relations and the application of behavioral sciences came to be talked about. Takezawa does not claim that all of Japan moved through these stages. Rather he seems to be saying that it took more than 100 years for America to go through these stages whereas Japan has compressed them into a short time.

An important characteristic of Japanese management which has deep roots in the culture is that it is a form of social organization highly "familistic." As Marsh and Mannari put it :

"Japan's industrial productivity has developed within a paternalistic, particularistic, diffuse, and nonrationalized form of social organization, common in large, technologically advanced companies."

The paternalism mentioned above is not quite comparable to the kind of paternalism seen historically in German companies such as Siemens or in the large American companies founded by one man. The principal difference is that in Japan the enterprize owners and managers make an unwritten commitment to take care of a worker until his later years and, reciprocally, the worker makes a commitment to the company for life.

A related characteristic of the industrial culture in Japan is the seniority system which differs substantially to that we know of in western industries.

The important factor in lifetime commitment is seniority (*nenko joretzu*).

The amount of pay is vastly determined by education and length of service with the company. The seniority system may underpay a worker in his early years (compared with the U.S. system which pays the same wages based on a job classification) but overpays the worker in his later years with the company. A 50-year old floor sweeper could be earning more than 3 times the amount of money of a 20-year old worker in the same department who is on a more complex job. The interesting fact is that workers hold a man in high regard because of his age and not for the work he is performing. A floor sweeping job is not considered a degrading or menial task. The focus is on the person.

There is some indication that in some segments of Japanese industry including one or two of the automobile companies there is a basic movement underfoot to move in the direction away from pay based solely upon one's education, skill and seniority to one based upon formal job classification. Also, there are changes at the other end of the scale. Traditionally, the compulsory retirement age in Japan is 55 with the assumption that a worker would be taken care of by his children. That is now changing to a program in which the national government, as well as companies, are assuming greater responsibility for retirement security.

Another characteristic of the culture which has a direct bearing on the work alienation issue is that historically there has been very sharp division between the white collar managerial groups and the blue collar workers. One observe put it this way :

"In essence, it appears that the authoritarian system of the hierarchy, inherited from feudal times, was helpful in developing a highly disciplined work force, but the effect of industrialization has reduced the basis on which such a system can be supported. On the other hand, there seems to be an abundant source of potential alienation created by the economic change. Prosperity over the past fifteen years brought about the birth of new upperclasses, reminding the bluecollar worker of the existence of a world to which he does not belong. The dream of an equal society, which appeared so close to reality during the turmoil of immediate post-war years, still seems far away. The widening range of consumption levels, in housing, education and leisure time activities, magnifies his anxiety and sense of helplessness. At the work place, changing patterns of technology and management create a feeling of inadequacy and a fear of the unknown."

Another related cultural characteristic is the process of "consensus decision making." This will be brought out sharply in the later discussion on labour-management relations. Both at the highest level of management,

as well as relationships at the grass roots level, one never hears people talk about solving problems through confrontation. Rather it is done by mutual consensus after much discussion. There is nothing akin to the grievance process system known by those of us in the United States. Emphasis is placed on reaching consensus through group discussion. There is no such thing as taking a vote in a committee with a majority rule deciding. This is true whether one is talking about actions of the Board of Directors at the top of Japanese management or a discussion in a committee involving supervisors and shop workers. Matters are discussed at length and "talked out" until consensus is reached. Once it is reached a commitment is made by all parties to carry out the "understanding." The notion of solving problems by consensus has certain ambivalences with the other deep cultural tradition of ordering relationships on an authoritarian basis. Takezawa in an interview with this observer made the following comments:

"The pattern of social relationships has two characteristics. In the first place in Japan there is a relative lack of conflict and confrontation when two people meet or when people meet in a group. Dispute and confrontation are tabu. On the other hand there is a long tradition of ordering relationships on the basis of age and seniority with the younger people being subordinate to the older people. There are extreme feelings of confrontation and dispute when two separate but equal groups of Japanese are in competition with one another. This is true of sports teams as well as all rival groups. Under these circumstances there is much more intense rivalry than in America and it is extremely different from the British situation after two teams have fought each other on the field and then will join together to have a pint of ale or a cup of tea. The second type of confrontation does take place between persons who are unequal. It is not exactly conflict in the Western sense but rather it is that senior persons or the older people who will tend to treat younger people with greater disdain. Traditionally, the Japanese subordinates have accepted this. These phenomena have their spillover effects in industry, but the situation is changing. Management feels that they must do something to break down the barriers, because times are changing. But they are not willing to take the step to do it through face to face and equality type interpersonal relations. Rather they take the safer route by institutionalizing their relationships to their employees through institutional and formalized programs. They do for the workers what they think is good for the workers. They make efforts at solving the problems of the needs of workers, but they still do it in a formalized way. This is true in most Japanese industry, although Honda may be the great exception."

Interestingly enough, this notion of institutionalizing or formalizing programs involving workers does not necessarily carry over into the institutionalizing or formalizing the work structure. Putting it another way, such highly formalized programs of work measurement, job design, application of industrial engineering and scientific management principles, which characterized American industry, does not appear to have taken hold as much in the Japanese motor car industry. Rarely did this observer find industrial engineering staff members "imposing" their rational schemes of job design and job description on the workers. The industry does employ industrial engineers who advise on methods improvements, but who do not dictate the terms along western lines. Indeed, as Takezawa points out it was 15 years ago that a large element of the industrial engineering society started what was called the idea of the "quality control circle."

"Although it began with a notion of improving quality control, it branched out in the other areas. The Japanese industrial engineers realized very early that, unlike the Americans, in order to gain cooperation to install scientific management ideas, it was very necessary to get the cooperation of supervision and the work force."

The industrial engineers utilized the traditional Japanese consensus system as a social arrangement for solving problems of design, layout, quality control, safety and even other problems involving the man-machine interface. This led to improved socialization as well as individual self-improvement and technical efficiency.

One final observation about Japanese cultural values as they affect the workplace. The Japanese management authorities do not believe that work problems can be solved by simple methods such as redesigning jobs, job enlargement, job rotation, job enrichment or changing the technology (as in the Volvo Kalmar case) to improve job satisfaction. The Japanese look at the "whole man" and all the variables affecting the total person. This includes satisfying the internal psychological needs for self-actualization and fulfillment. It includes all of the external conditions impinging on a person's life at work and it considers the whole life span and total career perspectives.

By doing so the Japanese have avoided taking a piecemeal approach so characteristic of the West, especially the United States. In America, managers are attracted by simple "packaged" programs for "making workers happy and productive." They install such programs (job enlargement, for example) much the way a piece of machinery is installed and expect quick and lasting results in satisfaction and productivity. This observer has found that such atomistic packaged programs designed to raise the level of interest and motivation among workers will usually fail. Consideration has not been

given to the total array of factors—the total system impinging on all aspects of life at work. In Japan this holistic perspective is a basic condition of the culture itself and is manifest at the micro-level of the industrial plant itself.

Part C Wage Systems, Incentives and Fringe Benefits in the Japanese Automobile Industry

By the end of 1973 the average wage for a Japanese automobile worker, including fringe benefits was approximately \$ 9,000 a year or about 3/4 of the rate of the American automobile worker. In a wage survey at the end of 1972 the range of total monthly pay, including basic wage, incentives, family allowance, overtime pay, ranged between 71,000 yen and 107,000. Wage increases in Japan from 1971 to 1973 were probably greater than in any country in the world. For example, there was an 18% increase in wages in the automobile industry in 1971, a 17% increase in 1972 and a 21% increase in 1973.

As indicated earlier, the wage system in Japan is not based upon job classification. When a young worker enters the plant a wage rate is set for him based upon the amount of education and experience. Thereafter wage increases are based on seniority as well as various kinds of bonuses. Two workers working on identical jobs on the line with, say 10 years seniority, could therefore be earning different wages because one of them had a higher rating to start with because of his education and experience. Also, there could be a difference based upon bonus incentives determined by management.

The administration of the wage system differs from one automobile company to the next. All the companies have worked out elaborate suggestion systems. The degree of participation often determines how a worker will be rated semi-annually for bonus consideration. Those receiving top awards are also given an opportunity to travel abroad (the worker and his family) at company expense. At Honda, for instance, 70% of the starting wage is based upon the job (which includes education and experience), then, over time, 30% is based upon merit. Each year there is an automatic wage increase for all workers but there will be a difference based upon evaluation and merit rating on a six month basis. There are three factors in the merit rating scheme for bonus purposes. One factor is based upon productivity and quality of work performed. The second is based upon "attitudes" (which was not clearly defined). The third is based upon the number of suggestions submitted as well as one's efforts at "self-cultivation." The latter refers to the worker's interest in learning about other types of jobs. Workers are not only permitted, but are encouraged to find out about other jobs in the plant and to avail themselves of the training and education provided by the company. Other companies have different schemes but the

basic purposes are similar.

Unlike what was found in the United States, where merit systems have been tried, there is little evidence to suggest that the Japanese workers strongly resent the system. But there is some evidence indicating that younger workers are beginning to resent the pay differentials between themselves and those with greater seniority. And there is a strong movement in other Japanese industries to pay by job classification rather than seniority. It was not clear from this study that the trend and pressures are also present in the automobile industry.

There are other fringe benefits in the Japanese scheme. Because of the labour shortage all companies are engaged in massive programs providing housing for married and unmarried workers. Many companies have built elaborate recreational facilities. Toyota alone spent \$ 20 million on a sports center. Participation in the suggestion systems is high compared with the Japanese Western counterparts. In addition to the national health scheme to which the companies contribute, many of the companies have built and operate their own hospital.

The striking difference between Japan and the United States and Canada is that the entire structure of wages and benefits in the latter countries has been worked out through the collective bargaining process and firmly spelled out in the labour-management contracts. Such contracts have been achieved in a confrontational mode often ending in bitter and prolonged strikes. North American workers have rarely accepted unilateral domination of wages and benefits by management alone. Japanese unions may have some influence but workers appear to be more willing to accept management judgement and management decisions.

Part D The Labour Market and the Special Issue of Youth

The issue of youth in the Japanese automobile industry merits special attention. Youth in particular are showing increasing signs of work dissatisfaction. One observer had the following observations :

Old workers are still deeply concerned about their basic employment security where workers nowadays may sincerely aspire for an opportunity for self-realization. (Young workers) manifest disinterest in work, little identification with the company, and growing mobility (which has) posed a new puzzling experience to many managers. A trend which may have a far reaching effect on the economy in the long run is the loss of appeal of big businesses to the young generation. The younger groups are more concerned about shorter hours and jobs compatible with their ability. The new generation is more interested in material acquisitions, such as automobiles and house ownership. To older workers, extension

of retirement age, employee benefits and services, accident prevention, social security and tax reductions seem to have a real appeal.

"There is considerably more mobility and transfers between companies. Younger workers are seeking better opportunities and there is less reluctance on their part to change jobs. With the tight labour market they know that such opportunities are available.

A common fact which measurably influences the attitudes of young Japanese workers (a fact universal throughout the industrial world) is that levels of education are rising and with it comes rising levels of aspirations. The Japanese automobile industry in particular is affected by the situation. The labour force, especially in the assembly part of the business, is relatively young, averaging below thirty years. Many Japanese managers admitted to this observer that in addition to the labour market situation as such one of the primary reasons for attempting to face up to the work alienation issue was because of the growing dissatisfaction among young people.

Part E Labour Management Relations- Goals and Actions

In the introductory section of this report on Japan, it was pointed out that the Japanese unions associated with the motor car industry placed high priority on the work alienation issue and on the need to improve what they call humanization of work. To better understand how these goals and policies have been put into effect, or will be put into effect in the future, it is necessary to understand the special circumstances and background of the labour-management relations within the Japan.

In background and function, the Japanese trade union movement, and this includes the automobile industry, is markedly different from that found in other parts of the world and especially in the United States. The labour movement in Japan, and especially in the automobile industry, is of recent origin. The dominant form of union structure is based upon the individual companies or enterprises. Politically Japanese unions are weak. Political loyalties among Japanese workers are divided between the Social Democrat, Socialist and Communist Parties. Collective bargaining, as it is known in the United States, is unfamiliar in the Japanese union-management relationships. Because of the cultural conditions alluded to earlier with respect to reaching agreement by consensus, there is almost no such thing as formal grievance procedures as is known in the U.S. With few exceptions, the automobile industry has not been characterized in recent years by large strikes and industrial unrest. Only in the past few years has a confederation of Japanese automobile workers unions been formed. Many observers agreed that there was little evidence that the average worker on the line was conscious of any union activity beyond the confines of the workers own plant or company.

The central feature of Japanese unions, is that they are mostly organized at the company or enterprise level with membership coming from the regular employees of a given firm, regardless of type of work. Union membership in most of the automobile companies also included members of the lower supervisory ranks.

Following, are observations made by two of the leading labour leaders in Japan together with some observations by students of labour relations and by representatives of the companies themselves.

Ichiro Shioji, President of the Confederation of Japan Automobile Workers' Unions and a member of the Japan Council of the International Metal Workers' Federation made the following observation :

"Our unions are considerably stronger at the company level than we are nationally. We are trying to create an industry-wide type of collective bargaining situation while at the same time maintaining the advantages of local autonomy, which we now have. Also, there is a need to become politically influential in the national sense. Right now, labour is not considered an important force in the government. Politically, labour is divided between the various factions of the Socialist (Sohiyo)) and the Socialist Democratic (Domei) parties as well as the Communist. We, in the federation, are trying to build the ground work for a strong National Confederation so that we can lay down national standards. Once this is done on a universal basis, the company unions can then promote their own activities, but under the general umbrella of the national guidelines. The FJAWU do meet regularly and have periodic consultations with management in projecting the needs of the Japanese automobile workers in the future. We see the basic function of the FJAWU is to try to reflect the true feelings of the workers, and bring this to the attention of management. We have our own council meeting, three to four times a year, to discuss the various policy issues and we invite and encourage management representatives to be present.

Professor Takezawa elaborated further on these observations by saying :

"The Japanese workers for the most part are wholly aware of the fact that they are in company unions. We would like to have the sense of feeling and of belonging to the national unions, but this is just in the beginning stage. Therefore, the workers are sometimes skeptical of any agreements reached by union representatives at the national level. Japanese workers do think that the union is a good safeguard against arbitrary actions of managements. Older workers remember the serious labour disputes of the 1950's. The unions were born at the time when the economic needs of the workers were very obvious. They were

working at a poverty level and they welcomed some appearance of a union organization. But today, with prosperity, it is quite possible that the loyalty and identification of a worker to his union is not as strong as it was at one time, in spite of the efforts to form a national confederation such as one finds in the automobile industry. They realize that the strength of the unions will lay in the appeal that they can make to these younger workers. This means that they would like to push wages as high as possible for the new and young workers. On the other hand, they know it would be politically unwise to adopt a system of equal pay for the same job."

As indicated earlier the strength and loyalty of the union is at the enterprise level. As one observer said, "The union is almost inseparable from company life to the worker. It is not unusual at the local level to find local union leaders expressing the high degree of dual loyalty to the union and to the company." This may seem paradoxical but it can be accounted for when we consider the fundamental notion of lifetime commitment and career employment. Union officials know that only by being fair in their dealing with management will their efforts be appreciated by union members and managers alike. Local unions play a minor role in what Americans would call day-to-day "grievance" settlement. There is not the legalistic tradition of processing grievances. Also, the union membership includes members of supervision which would make it difficult for the union as such to take sides in an individual grievance. Local unions for the most part leave the responsibility to management to settle problems of the individual workers.

In another company, Isuzu at the Fujisawa Plant, management had the following observation with the respect to labour management relations :

"The function of the union representative is primarily of passing information down from top union officials or of passing information upward. It is more of a communications link. The union representatives do not bargain in a sense that they do in the U. S. Do not forget the fundamental differences in the systems. In the first place the Japanese seniority system is not rigidly linked to the job. Second, workers expect lifetime employment and management accepts this assumption. Third, we do not have a national union or national contract. Finally, there is a union representative elected by every 100 employees in the shop. Their job is to be a communications center before some issue would come up.

There were some subtle, but important differences in the observations made regarding labour management relations in the different automobile

companies. At Toyo Kogyo this observer got the impression that relationships are distinctly more formalized than in the case of Honda. One of the members of the Toyo Kogyo management, "Our unions do not argue with company management." He went on to say, "We like the Japanese system of company unions, because we can deal with our own problems without having to deal with an overall national organization."

The observations above were made during the study tour of October and November, 1973. Shortly after that came the world oil crisis as well as changes in the exchange rate of dollar and yen. Most of the Japanese automobile manufacturers had severe cutbacks in their foreign markets. All of these new conditions may have put new and severe strains in the labour management relationships in Japan. Production schedules were cut back. The rate of inflation in Japan went up markedly during 1974. During Japan's annual Spring Labour Offensive during 1974 most unions demanded and received a wage increase of more than 30%. Given the inflationary spiral, the loss of market and the threat to the security of the work force in the automobile industry, it remains to be seen whether the peaceful relationship between management and labour will continue in the future. These conditions also raise the question of whether the issue of "humanization of work" and work alienation will continue to hold top priority with the Japanese Automobile Workers Union, and whether some of the management programs to be discussed later will be continued with the same degree of encouragement and support for management.

Part F Level of Technology on Japanese Assembly Lines

From the point of view of efficiency, the Japanese assembly lines are as advanced as those of any plants in the world including the U.S. There is a high degree of automation, especially in the body welding operations. Production control, material control and scheduling are linked to highly sophisticated computer systems. Most of the lines run at speeds of 40 cars per hour and more, considerably higher than most of the plants visited in other parts of the world. Because the industry is relatively new, plant facilities are modern by any standards — effective lighting, clean air, adequate space for the storage of parts and materials along the lines. In most plants a number of different models of vehicles are produced along single lines.

Unlike many of the older plants in Europe and in the U.S. which are pushed to the limit of their capacity, most of the Japanese plants have room to spare to expand production facilities. At Toyo Kogyo, for example, the two major lines were running at speeds of 40 cars per hour, but had the capacity to produce more than 60 per hour. The final line at Honda was operating at 60 cars per hour, but with the space and technical capacity to

go up to 120.

All automobile assembly lines have four basic divisions ... welding, paint, trim and final assembly. Few plants in the world, if any, have been able to automate trim operations and most of the operations in the final assembly section. This is true also in the Japanese assembly operations. Most advancements have been made in the welding operations. This observer would rate most of the Japanese welding operations in the top 20% in the degree of automation. Spot welding machines have been designed that are capable of automatically welding between 300 to 500 welding points at one time or in a series or tandem of automated welding operation. One welding machine at Honda, for example, was capable of performing the work of 30 men. At the Oppama plant of Nissan (an old plant about to be replaced) general welding machines known as "robots" have been installed. These machines give the appearance of a human arm capable of welding at many angles and articulated at the "elbows" and "wrists." As each model of vehicle comes down the line, a signal is automatically given to a computer linked to the "robot" which puts several spot welds on the car body. It then waits for the next car body to come down the line, automatically receiving signals for a different configuration of welds. There are obvious practical reasons why Japanese management is investing large sums of money to accelerate the installation of automatic equipment. There is an extreme labour shortage. Any opportunity for labour saving devices is vigorously pursued.

At the time this study was made in the fall of 1973 no one in the automobile business in Japan expressed any fears about technological unemployment. In no plant was there any example of workers being laid off temporarily or permanently due to the installation of large scale labour saving devices. The industry at the time was characterized by large scale growth and expanding international markets. Jobs were always available. Undoubtedly the crisis situation of the winter of 1973-1974 caused a sharp slowdown in growth. This interviewer frequently asked managers in October of 1973 what would happen to the employment picture if there was a business recession or other factors to slow down the growth. Without going into details to how it would be accomplished the response from the Japanese managers and executives was that recruitment of new labour might slow down or stop entirely but under no circumstances would the workers be laid off. This response is undoubtedly related to the basic cultural phenomenon of life time commitment on the part of employers. Some employers also feared that the unions might react "in violent ways" to mass layoffs.

One final and important comment can be made with respect to automation and the central issue of this study, work alienation or job dissatisfaction on assembly lines. Japanese management has accepted the fact that

many of the most routine conveyor paced jobs on the assembly line are present or potential sources of job dissatisfaction, which in turn can lead to poor quality performance and other disfunctional activities. Having apparently rejected the idea of completely restructuring operations (a la Volvo or Saab-Scania) they believe that the alternative would be simply the elimination of the most onerous tasks by automating them. The head of the union at Honda, for example, said that the workers welcomed labour saving devices and often made recommendations for their installation. Other more interesting jobs were available and those who became the operators of automated equipment much preferred such jobs in making comparisons with the old short-time cycle conveyor paced jobs.

Part G Intrinsic Characteristics of Assembly Line Jobs

At the heart of the work alienation issue on assembly lines in the intrinsic structure of the jobs themselves. How repetitive are they? How much are jobs determined by the mechanical pacing of the conveyor? What are the line speeds? How many operations does a worker perform in his job cycle? How much space is available for the performance of a man's operation? How heavy is the work in a physical sense? How much social interaction is permissible in the performance of the job? Can the worker complete the operation with enough time to assure that the work meets quality standards?

A common assumption has been expressed by Western observers that the Japanese automobile worker works at a faster pace than the American worker. On the basis of my own observations it would appear that this assumption is not necessarily true. In each of the four major departments as well as engine machine and engine assembly operations and stamping plants, data was collected on line speeds, job cycles, number of operations performed, etc. Also in each of the assembly plants in Japan as well as other plants around the world, this observer selected certain particular "common" jobs to time performances. There was no general pattern. As might be expected the individual work loads and operations were related to the line speed and the line speeds in the various plants differed. But, as observed earlier, few lines ran less than 30 cars per hour. This would put them in the category of high speed operations. It should be pointed out also that the speed of the line alone is not necessarily a measure of work load. Rather, the number of men performing a series of operations in a given section of an assembly line must be factored in to work loads. Another important consideration is that production schedules on a given day or given period of time, might be more in quantity than usual due to external conditions. In Japan, in particular, with a basic no layoff policy, even temporarily, the

individual work pace would be much slower. This condition existed during the period this observer went to the Oppama plant of Nissan in which the line speed had been reduced to 24 cars per hour with the same work force operating at a usual 32 cars per hour. Thus, a spot welder who might have a 3-minute job cycle ordinarily was permitted four minutes to complete the operation. In this example, the job had the same degree of repetition but with more time to do it.

A similar condition appeared to exist at the Isuzu (Fujisawa Plant) where cycle times ranged between 3 and 4 minutes at a production rate of 22 cars per hour. The observed difference, however, was that many operators had more operations and greater distance along the line than in the Nissan example. At Toyo Kogyo the time cycle averaged 2.8 minutes at a production rate of 40 cars per hour — a high speed line. American workers have considerably more relief time.

The Honda plant visited operated at a rate of 60 cars per hour and in the body (welding shop) the time cycle was between 52 and 55 seconds. In final assembly operations, with a production rate of 50 cars per hour the job cycle was approximately 70 seconds.

Toyota, like Honda, was producing 60 units per hour with an average cycle time of 60 seconds for each job. In the trim operations in final assembly, this observer clocked a number of jobs and found that the time of the actual job cycle was 52 seconds at a production rate of 60 cars per hour. An observational note read, "There is no question that the workers at Toyota in the trim department are performing more operations in a given time cycle than would be true in my observations of American plants. Workers here were obviously working considerably harder."

One additional comment is in order regarding the degree of social interaction among the workers on the job in the Japanese plants. Regardless of work cycle or line speeds, the general impression was that the amount of talk or interaction on the job in the Japanese plants was much less than that observed in American plants. The social interaction rate in many European plants was extremely high in comparison.

Assembly line operations in Japan appeared to run at a steady pace. Very rarely were any interruptions to the work flow observed, interruptions due to mechanical breakdowns, parts shortages, labour disputes, etc. This would not appear to be an important factor with respect to the issue of job/dissatisfaction, but assembly line breakdowns or stoppages were very common in many plants throughout the world and this created, according to union and management observers alike, a considerable amount of frustration.

One final observation about the Japanese lines. Compared with American lines, there were far fewer inspectors in the various sections of the

lines as compared with American automobile plants. An American engineer in Japan confirmed the fact that inspection costs in the Japanese industry are considerably lower than they are in other countries, particularly America. As the engineer said, "Whatever it is about the Japanese worker, he gets the job done right in the first place. It does not have to be reworked later, hence, lower overall inspection costs."

In conclusion the evidence was very mixed as to whether Japanese workers "work harder" than they do on the automobile assembly lines in other parts of the world. The element of high speed lines, short time cycle, degree of repetitiveness are clearly present in the Japanese operations. Many managers, academic researchers and union representatives were convinced that these elements and characteristics could indeed contribute certain basic job dissatisfaction. Management's solution was not to break up the lines, eliminate conveyors and restructure the jobs themselves, but rather to encourage rotation and career development and provide opportunities for workers "have a say" in the kinds of changes that could be made within the context of the basic line technology. Also, there were many recreational and other programs external to the job itself, which management believed, might provide satisfying diversions from the job.

Part H Management Programs for Providing Motivation and Increasing Job Satisfaction

Management's motivation for engaging in extensive "corrective" programs was not simply an altruistic desire to improve the quality of work life as an end in itself. They were worried about the effects of job dissatisfaction on productivity and on quality performance. They were concerned about the rising levels of education and about the reactions of youth to working in a highly repetitive, routinized, conveyor paced environment. They saw the breakdown in the long cultural tradition of lifelong worker commitment to an employer. The labour market was tight and young people were asserting the option to avoid unchallenging work and to take the option to transfer to industry that provided more challenge and greater opportunities.

Most of the efforts for providing work satisfaction are concentrated of various programs of job choice, of job rotation and worker participation in matters related to their immediate job environment. Participation takes the form of maintaining elaborate suggestion systems and in frequent small group discussions among workers and with supervision and management staff representatives.

Participation and the Suggestion System

Like their counterparts in the United States, Japanese management is

committed to the suggestion system scheme. Comparative figures between American and Japanese companies were not available but the Japanese programs were far more extensive. The number of workers making written and other suggestions and the percentage of acceptance and adoption was far higher. Also, suggestions were not limited to proposals for increasing productivity, for better quality, or for improvements in safety or working conditions. Many, it was reported, dealt with basic questions of work load, job design and organizational structure — issues which in America are often considered as sole management prerogatives.

Participation is also linked to the wage system itself in that high participation adds credits to performance evaluation under the semi-annual merit rating schemes. There are, of course, direct monetary awards given for the suggestions themselves. Outstanding performances, are given free holiday trips at home and abroad.

Supplementing the suggestion system, in the case of Honda at least, there are work shops on company grounds where workers in their free time can design and build all kinds of gadgets. Each year an "idea contest" is held and awards given for the most ingenious gadgets.

Except for a few informal conversations with workers (with a translator present) this observer had no way of determining whether in fact the enormous effort on management's part to make the suggestion systems work had any direct effect in counteracting the fundamental frustrations of high speed, repetitive conveyor paced jobs. One can only report that management was convinced that the suggestion programs were important and effective in this regard.

Job Rotation The most direct "attack" on the problem of boredom was through the practice of job rotation. Whereas suggest systems had a long tradition and were adopted long before the world discourse on work alienation, the notion of rotating workers around on different jobs appears to be fairly recent. Some of the academic researchers in Japan felt that the industry was influenced by reports of job enlargement or job rotation experiments in other parts of the world.

Some skepticism of job rotation practices were expressed by Shioji, head of the autoworkers confederation. He was concerned about the system as an overall policy. He questioned the assumption that all workers wanted to rotate :

"Job rotation is one obvious and very popular approach in your country (USA) and in Sweden, but we are not sure that this can be dealt with in a systematic way. We cannot press the button and say that all workers will rotate on jobs and expect that the result will be in basic psychic satisfaction and self-fulfillment.

Job Transfer and Career Development

The notion of "career development" even at the blue collar level has been accepted by Japanese management for many years. It is a "natural" dimension to the system of compensation based upon years of service and to the fundamental notion of life-time commitment to employees. In no country was there so much expressed concern of management as in Japan about the importance of providing opportunities for developing one's skills and experience.

What appeared to be new in the dialogue was that management had become increasingly aware of the world-wide discussion of work dissatisfaction on the assembly line and aware of its immediate consequences because of the labour shortage and the unrest among youth. In short, they saw the need to step up programs of job transfer and career development, programs which they had already come to accept as part of a more generalized cultural commitment.

An officer of the union federation felt that most of the automobile companies tended to pay more attention to the talented workers because "it benefits management." He went on to say,

These workers are in the minority. Management does not pay enough attention to the average worker. It is far more important to learn how to deal with those (the majority) who do not have outstanding abilities. They have the same fundamental human needs and this is what life is all about, is it not?

Part I Creativity and the Work Team Concept

The most significant Japanese "innovation" has been the development and proliferation of the work team concept, an effort to grant more autonomy to small groups of workers on the line. Within the constraints of basic assembly line technology, workers are encouraged to get together frequently in small work groups to discuss and recommend new ways for allocating work, determining work loads, advising on technical improvements, dealing in matters of quality, safety and immediate working conditions.

Unlike the suggestion system concept, an idea obviously "imported" from the United States, the work team concept had its roots in the Japanese culture itself and was systematically introduced into the factory system. Earlier we pointed out that decision-making in Japan in management circles has always been "discussion leading to consensus" rather than bargaining in a climate of confrontation. But, as Takyawa observed:

The present proliferation of small groups on the production floor seems

logical in view of the collectivistic cultural background. The new trend appears, at least in part, to be a natural extension of the traditional interactive decision-making practice. It was formerly reserved as a prerogative of executives and staff workers, and was denied for most production workers. The leveling process in society, however, seems to have made it possible and necessary, to integrate the feature into the regular work patterns on the floor. (There is) a growing trend to introduce autonomy and small group features under the leadership of elected rank-and-file representatives.

The immediate origins of the work team concept may not have been in the motor car industry. The shipbuilding industry, for example, found that it was difficult to superimpose industrial engineering principles in the traditional manner. The industrial engineering society, in trying to face up to better methods for quality control, established "quality control circles" made up of supervisors and workers. The technical staffs realized early that involvement of all parties was the key to successful change. With initial successes the technical staffs decided to utilize this same "social arrangement" for introducing change and solving problems of work design, layout, material control, safety and a variety of problems including dealing with problems of human relationships resulting from technical changes.

The idea and the practice apparently spread to other industries including automobile manufacturing. It was also modified to give greater autonomy to the work teams themselves without the domination of management or of technical personnel. It came to be seen by management (and by at least one major union official) as a "natural" mechanism for counteracting the problems of work alienation as well as for making quality and productivity improvements.

The structure and purpose varies somewhat from company to company. At Toyota the workers in a given section of the line (20 to 30) meet once a month with a sub-foreman or foreman in attendance. At Honda the system is more informal. Group meetings are not held at any scheduled time but the evidence suggested that the practice has proliferated throughout the organization. "It is common for workers to get together and come up with ideas and suggestions as a group. Ten workers in a section might get together with an idea — even an idea for the installation of equipment for replacing eight men. There is no reluctance to do this because we have not experienced any case where anyone was discharged because of labour saving devices."

The work team concept at the Nissan (Datsun) Oppama plant is highly organized. Called the "vital team concept" it was unique in that it was

created explicitly on the basis of Herzberg's motivation theories. Launched in July 1972 all workers at the Oppama plant are formed in groups of 6 men per group. More than 1000 work groups meet approximately twice a month on company time. The group head is not a foreman or member of management. Rather, older workers serve as group leaders. The chief of personnel who originated the scheme discussed the vital team concept in detail:

We are trying to encourage more self-design of jobs by workers (through the vital team concept) and will expand it when we open our new plant. The primary aim of the work group meetings is to determine ways the group can improve their own jobs. The focus is not on any "big picture" but on the operations themselves. The purpose is not to increase job satisfaction as such. We are trying to get at the motivational aspects of improvements. We are trying to give greater latitude to workers to determine their own jobs. Moreover, they are following through on suggestions for actual improvement.

This experiment in the assembly of Datsuns (Nissan) is going to be adopted for the entire work force of a new plant under construction. According to a labour leader, "An entire work group in (each) section (will have) complete authority to determine how they are going to allocate the work and do the jobs." He also pointed out that in the Nissan radiator plant there are successful experiments in structuring work so that the individual worker completes the entire assembly of a radiator.

Those acquainted with the European experiments in job design will recognize that the examples cited above represent two much discussed concepts in altering traditional assembly practices. The first is the concept of the autonomous work group, the second, individual job enlargement extending to the point of total assembly.

Part J Honda — A Special Case

From observations of several Japanese automobile plants and from interviews with dozens of people from labour, management and universities the Honda company has some unique characteristics in its style of management which deserve special mention. These characteristics are directly related to the issue of work alienation on the assembly line, but they go beyond the narrow issue as well.

In describing the uniqueness of the Honda situation this observer is reluctant to appear to be taking sides or of "promoting" the company or its products. What stands out at Honda, according to observers outside as well as inside the company, is what might be called a "climate of creativity."

There is an expressed feeling of dynamism, of growth and of goal accomplishment by individuals and by the group as a whole. This climate of creativity is a result of a number of factors. Unlike some of the other companies Honda is relatively new having been formed after World War II. One might say it was unencumbered by pre-war tradition. It was founded by one man who set up a small shop for building motorcycles. Mr. Honda by skill and temperament was a "shop man" who, even when the company became large, was always concerned about production details, and more important, about the role played by the man on the floor and his creative potential.

Another factor: Honda was new in automobile manufacturing, starting as late as 1968. Top management utilized its motorcycle production experience. It built up a new research and development capability. But given the shortage of labour and technical skills it decided to exploit to a maximum the potential already existing within the organization. Earlier it was noted, for example, that almost all members of operating management started in the shop itself as did 65 percent of the personnel in its 70 domestic sales offices.

What has happened at Honda is best described in the words of researchers, labour representatives and company personnel. First, a leading industrial sociologist:

Because of Honda's youth and excellent management they had decided not to go the traditional industrial engineering, scientific management route, nor the paternalistic, human relations route. Rather, they decided that in order to get ahead they had to utilize ideas from everyone in the company right down to the workers and it is a company that has the fewest hierarchical differences. The founder of the company was an amazing man. And he saw the wave of the future was for true democratization of the company.

Honda has long sensed that there is a profound switch in the culture and in the values of the workers. They realized that they could no longer maintain the traditional class system between management and labour. They realized that the young workers were seeking something greater in life than using work merely as a means for other external ends. And in addition, Honda was desperate to get all the ideas it could, so that it could meet its competitive tests. So they made the switch and decided not to go for the traditional recreation programs and to not adopt the principle that management knew what was good for the workers and that management, through its own unilateral actions could motivate the workers. In short they rejected the notion of institu-

tional methods of motivation and decided to go the route of freedom of expression and greater control from the bottom and communications from the bottom upward.

Honda has a philosophy of deliberately wanting to keep higher management understaffed. Part of this is just from the fact that with the labour shortage and managerial shortage they are understaffed. But also they do it deliberately on the philosophy that this is going to force decision making to be made at lower levels since there are not persons in higher authority who can make these decisions. Also, they feel very strongly that some of the better decisions can be made by the people who are out on the firing line. The home office staff is very small and has very little authority. Those in the home office and staff positions in Honda have to prove their authority by demonstrating that they have facilitated others to make changes. No staff manager in Honda can go around tooting his horn about new programs he has started. He is judged by the manner in which he helps others to accomplish the goals of the company. As I said before all of this may not have been some carefully thought out theory of participative management by Honda. It may have simply been that Honda came into the game late (1947) and had to fight the big traditional companies. Therefore, they had no other alternative but to take on a different management philosophy which stressed creativity and self determination.

Mr. Honda shocked Japanese industry when he made an announcement to his employees which said, "don't work for the company, just work for your own satisfaction."

A research officer in a leading university supported the above observations and in addition placed special emphasis on career development and promotion opportunities :

The fear of technological unemployment does not exist in Honda. The workers know that they are not chained to the particular operation for their life. There is frequent movements of workers laterally and into promotions. Therefore, they are not concerned about whether the installation of new automatic equipment will affect them except in a positive sense. As a matter of fact most of the workers are quite proud when they are moved onto the more automated job. There is an especially favorable feeling in favor of technological improvements. One of the things that everyone understands is that on many of the jobs where there are minor changes in the direction of automation, it will do away with some of the more onerous tasks. Also, if there is

any thought of installing new kinds of machines, the workers and the union representatives are told in advance about the plan. As a matter of fact, many of the ideas have been started by the workers themselves. Also, the workers are always asked when they take a job of a new kind, whether or not they want it.

The good thing about working at Honda, is that both management and the workers are always willing to experiment with new ideas. At the present time there are now plans to permit, in some sections of the line, workers to start at the beginning of a section and learn all the jobs in the section so that they work right up the line.

One of Japan's top labour leaders, not directly connected with the company, voluntarily made some additional observations about Honda's "creativity," and in the decentralization of management control:

Honda has had to have the guts to break into new automobile markets in order to fight against the giants. Also they have saturated the motorcycle market and that's why they have to go into automobiles. They know they have to be creative; they know they have to be more flexible. Toyota on the other hand, feels like the king in the industry and are, therefore, more self satisfied. Honda has no alternative but to pay more attention to the workers.

Finally, members of Honda management, both line and staff explained the company's "climate of creativity" and its rationale:

Honda has a very intensive program of automation and technological change, but they state that they do not fear any problem of technological unemployment as growth continues. Much of the machinery of Honda is built by Honda Engineering Subsidiary which was set up, in their judgment, because of the many new ideas that were originated by the work force themselves as well as by their engineering staff. They also have a research and development company that is involved in basic technological advancement.

The workers do not necessarily feel that they are contributing anything to the economy of Japan, but subconsciously they are highly aware of the fact that Honda is on its way up and will become in addition to being today the largest producer of motorcycles in the world, they feel that they are also going to take a larger place in motor car production.

They are extremely proud of the fact that they were the developers of the Compound Vortex Control Combustion System (CVCC) vehicles and that it is the only motor car company in the world that has already

met the standards of the United States Clean Air Act. Both Ford and Chrysler have already entered contracts for sharing the patents with the new pollution devices for the engines.

The worker knows exactly how his job has been analyzed because he was a part of it. The work standards are written up by the employee himself in conjunction with the foreman. One of the reasons that they threw out the American type scientific management system was that when the jobs were being timed, the workers slowed down and objected, "so we threw out the system." The plant manager said, "Every human being has the desire to improve. But if they are forced to work in a given way imposed by somebody else, they will object. We feel that the worker has the right to change his job and change the nature of his job. We even question the principle of the assembly line and are willing to make experiments if possible. Scientific management is good but it neglects humanity."