

Book Reviews

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Life on the Line in Contemporary Manufacturing: The Workplace Experience of Lean Production and the Japanese Model, by Rick Delbridge. Oxford: Oxford University Press, 1998, \$67.00 (hardcover ISBN 0-19-829233-3), \$24.95 (paperback, 2000, ISBN 0-19-924043-4)

Two diametrically opposed opinions have long coexisted about the 'Japanese' model of manufacturing management. One view, often held by management science scholars, says that it provides workers with high commitment human resources management (HRM) policies and also requires them to participate in planning tasks. On the other hand, many qualitative studies conclude that it results in a tight and oppressive factory regime under which workers are permitted little autonomy.

Delbridge offers an additional critical view of the 'Japanese' model, based on participant observation of social life on the shop floor at two plants, a European-owned automotive component plant and a Japanese-owned color TV plant. This observation continued for three months in the European plant and for one month in the Japanese transplant, sometimes working alongside operators and attending management meetings. His detailed observation offers many insights into how workers work and live in the plants.

Delbridge's contribution to the debate about the 'Japanese' model is threefold. First, while many studies have focused on automobile makers, he finds the same tight and oppressive regime of the 'Japanese' model in the electronics industry. Secondly, he attributes difference between the two opposing opinions to the level of maturity and complexity of the technology. When the technology is sufficiently mature for management not to expect further innovation, management does not expect workers to get involved in planning tasks and hence the 'Japanese' model is only partially transferred. Delbridge insists that this is often the case with the electronics industry. Thirdly, he points out the importance of rigorous production control at Japanese plants: control that enables management to seek to reduce uncertainty to a minimum and to secure high efficiency. What should be central in research on Japanese transplants, he argues, is not the extent of 'Japanization', but the extent to which the managerial prerogative is transferred to workers. A high level of transfer undermines workers' solidarity and independent rights and brings 'new' shop floor relations.

Does Delbridge really narrow the distance between the two opposing opinions? Does he show a new direction in factory research? It is difficult to answer 'yes', although his rich observation certainly serves to develop the research. Based on a critical review of his study, I will take up three aspects in which the gap could be closed, and search for a new approach to this issue. Those three aspects are identification of facts, interpretation of identified facts, and establishment of an analytical framework which may assist research on the transfer of a production system or the formation of a new production system.

If a management science scholar were to visit Delbridge's Japanese transplant and meet with the British and/or Japanese managers there, the scholar might well come up with a totally different picture of the Japanese transplant. The scholar might reach the conclusion that the Japanese

transplant had successfully transferred the Japanese model and that workers were well trained to be multi-skilled, with high quality consciousness and a better understanding of the company's performance. This impression would derive from such 'facts' as 'a planned stock of one-and-a-half days or less of completed panels between the panel shop and finals' (p. 35); almost daily changeovers of production models (p. 35); a well-organized quality control system (p. 36); the fact that mistakes are individually traced and displayed and that operators are requested to hold the number of mistakes below 20 per month (pp. 52–53); Grade Two operators 'who must learn different jobs and work in three different areas of the plant' (p. 134); management that 'expects each [team leader] to make at least one suggestion per week' (p. 142); senior members who are also 'requested to put forward their suggestions for improvement' (p. 139); monthly meetings where 'the senior managers report to the shop-floor directly' (p. 120) and a single-union agreement including a strike-free agreement (p. 160).

Such a scholar, however, would be wrong, judging from Delbridge's observation. Grade Two operators, for instance, return to their original work station and work mostly in the same position every day. 'In fact most operators are very loath to move around and the request to move is often seen as a form of punishment' (p. 91). In other words, flexibility is not secured. A team leader is described as being unable to 'make a considered and well-planned suggestion' for lack of time (p. 143). The management's attempt to elicit suggestions from workers generated only one suggestion per month, and the Total Productivity program as a whole was a failure (p. 139). A Japanese director tried to begin quality circles but very few workers participated (*ibid.*).

Needless to say, qualitative studies by participant observation have their own weaknesses. For example, if a researcher holds the illusion that workers in a Japanese transplant can enjoy the kind of autonomy envisaged in the ideal plants of some researchers associated with the socio-technical system (STS) approach, working well voluntarily without any resistance, he may well be disappointed to see the reality of the factory and hence may miss important facts. Critical events may happen before or after his observation. Consider the Toyota Production System as an example. The TPS involves frequent changes in takt time (the speed of the conveyor belt) with attendant job reorganization (Nakamura and Wicaksono 1999). Group leaders direct the takt time change operation and reorganize jobs to adjust to the new takt time. Immediately after the change in takt time, however, production does not go smoothly. Many line stops and quality problems usually occur. It is a time when many improvements through worker suggestions and quality circles are truly needed and are actually made. If a researcher happens to miss the takt time change, he may conclude that the workers are mostly engaged in repetitive, monotonous work.

Mutual data exchange would therefore be one measure to close the gap between the two opposing sides. However, the gap would probably remain to a degree, even if both sides had exactly the same data. This relates to my second theme: the interpretation of collected facts.

Delbridge judges that workers in the Japanese transplant are under a tight and 'oppressive' regime, by observing the thorough quality control system and the operators' complaints about it. Now Delbridge's detailed observation does not draw a clear line between objective identification and subjective evaluation. Workers in both plants make numerous complaints against the management, and there is no clear evidence that the workers in the Japanese transplant have stronger complaints than the workers in the European-owned automotive parts plant. The workers there may also feel hostility toward management. Takamiya (1985) found no significant difference in turnover rate or job satisfaction between an American TV transplant, a British TV plant and two Japanese TV transplants, all operating in the UK. The two Japanese transplants apparently produced neither happier workers nor unhappier workers.

Delbridge's analysis of peer pressure is looking at one side of the matter. He correctly observes that the workers in the Japanese transplant create 'some accepted level of effort which is seen as legitimate or 'fair' (pp. 116–117), and that this in turn produces peer pressure to maintain quality standard and line speed under a mutual monitoring mechanism (pp. 116–119). He ignores, however, the existence of peer pressure in the European-owned automotive plant. There, a quality controller is under pressure from line operators not to check quality too severely (pp. 27, 115), while operators pressure each other not to work too fast when a timer shows up (pp. 67–70). The point is not whether peer pressure exists or not, but in which direction the peer pressure works. Which direction is evaluated more favorably will largely depend on the researcher's personal values.

Scrutinizing Delbridge's rich data and critically examining his interpretation of them, the lasting impression is not that workers in the Japanese transplant are more oppressed, but that ultimately they are more committed to quality and efficiency than those in the automotive plant—regardless of their own personal intentionality. This does not mean that the workers in the Japanese transplant actively share the management's philosophy and targets, in contrast to the simplistic view of some management science scholars. If we accept this, the distance between the two opposing views narrows further, though it will never disappear entirely because of fundamental differences in personal values between researchers.

One of the most striking facts to emerge here is not the strength of managerial control over production in the Japanese transplant, but the *lack* of production management in the European-owned automotive plant, a lack often observed in British firms according to Delbridge (p. 180). Surprisingly, such antiquated terms as 'timer' and 'progress chaser' are still in use. There is no sign of any modern quality control system, progress control or work study in the automotive plant. If this is typical of British firms, then one sees an urgent need for them to modernize their production management if they are to survive in this era of global competition.

Japanese transplants have certainly wrought a transformation of management, but researchers to date have yet to analyze convincingly their varying degrees of influence. Delbridge ascribes these differences to the varying degrees of maturity and complexity of technology. The technology of color TV plants, however, is not mature and is evolving even now. Color TV plants in Japan and elsewhere are now trying to install a U-shaped line into the final assembly line instead of a free-flow line (Nakamura 1999). The U-shaped line requires greater commitment from operators. Some researchers assume that Japanese firms can transfer management systems unilaterally. In fact Japanese firms, like other foreign transnationals, can transfer some systems directly but not others. They have to adapt themselves to conditions rooted in foreign countries in some respects. If operators hate being asked to rotate among jobs, flexible work organization cannot be transferred. If British managers are unwilling to entrust managerial tasks to operators, neither quality circles nor idea suggestion plans can function well.

Now to my third theme, the need for a new analytical framework. In analyzing production systems in Japanese transplants and the formation of new production systems in the UK, it may serve to focus on three aspects—the production management system, work organization and HRM—and the consistency between them. It is assumed that when there is consistency between work organization and production management system, and also between work organization and HRM, the production system as a whole functions well. Following this framework, Delbridge's Japanese transplant can be analyzed as follows.

The plant's efficiency is not that high, estimating from Delbridge's observation. There are problems of bad line balance, wrong insertion of parts, and defective parts (pp. 56–59, 62). Since the production management system is supposed to be easily transferred, the relatively low efficiency is

partly due to managers' inability to execute the derived mode of production management smoothly and partly due to failure in obtaining the support of work organization. Regarding the latter, two points should be considered. One is operators' resistance to flexibility. This resistance has to do with the malfunctioning of the remuneration system. Once an operator gets promoted to Grade Two, s/he can look forward to a steady increase in wages even if s/he remains in his or her original job. The other point is whether or not British managers are truly willing to entrust some managerial tasks to the shop floor. This entails a radical transformation of a fundamental management idea to which they are accustomed, namely the separation of planning and execution. It is natural to assume that managers will feel resistance to the transformation. Together with operators' unwillingness to actively commit themselves, the result is failure to create a structure of work organization that fully supports production management. Failure to provide training opportunities, especially for team leaders and senior members, may be one sign of the managers' unwillingness. Team leaders and senior members are not provided with elementary training in quality control and industrial engineering (IE). Nevertheless they are asked to submit ideas and suggestions and instruct their subordinates. These aspects of factory practice at the Japanese transplant observed by Delbridge show that consistency among the three elements I have discussed has not yet been achieved. This, I submit, accounts for the lack of commitment to the company among the workers there.

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Edo no Shijō-keizai: Rekishi-seido Bunseki kara Mita Kabu-nakama (The Edo Market Economy: Commercial Guilds as Seen from Historic Systems Analysis), by Okazaki Tetsuji, (Kodansha Sensho Mechie 155). Tokyo: Kodansha, 1999, 176 pp., 1,400 yen (paperback ISBN 4-06-258155-8)

There was a time when a dominant concern of Japanese economic historians of the Edo period seemed to be to establish exactly when craft production gave way to *manufakuchua* (partly as a means of deciding whether Japan had had its bourgeois revolution in the Meiji Restoration). Then there was the period—which coincided with world-wide admiration for Japan Inc.'s developmental state and its industrial policy—when a favourite topic was the developmental *shokusan* activities of various proactive fiefs. Now that we have reached the End of History, now that *kisei kanwa*—deregulation—has been enshrined as a central object of Japanese policy (by a Socialist Party prime minister) and anything like industrial policy that smacks of state socialism is universally deplored in the world at large (except in a few unregenerate but 'insignificant' countries such as China) a favourite topic is the growth of markets, and the institutional conditions which made efficient markets possible.

This is the central theme of Okazaki's book, though he also offers at the same time, a splendid short introduction to Edo period economic history. Okazaki may not have done original work on the period as he has with such success on the twentieth century, but he is a master synthesizer of the work of others. In 150 short pages he gives a fascinating picture of economic and social change over those two-and-a-half peaceful centuries—change which by almost anyone's value criteria, whatever one thinks about the importance of markets—must surely be appropriately described as 'progress'.

He starts by surveying the ingenious work that has been done in recent decades to delineate in quantitative terms the trajectory of growth in domestic product during the Edo period, using estimates of population, money supply, cultivated areas or rice prices. Then come the econometric studies of the phenomena which explain those rising indicators—the growth of regional specialization, the growth of non-agricultural production and the effects that had on the distribution of income, the efficiency of futures markets, the growth of trade and the interdependence of local economies. (The Chūshū fief's exports and imports were already between 20 and 30% of total output; the figure is over 80% for Yamaguchi prefecture today.)

The second body of literature he draws on is *hōseishi*, the history of legal institutions—a flourishing branch of study in Japan, much more so than in most countries. From this, he summarizes—again with admirable lucidity—developments in property rights in land, in the predictability of taxation, and in the court handling of civil suits, with emphasis on the limited scope of the last. Feudal authorities were reluctant to do anything about the reinforcement of contracts, partly because they did not have the manpower to take on something which informal mediation usually took care of, partly because they were not so keen on the sanctity of contracts anyway—periodic cancellation of samurai debts to merchants was an essential means of maintaining the social order.

And so we come to the guilds of the subtitle, starting with a brief history of their development and of the ambiguous attitude of the Bakufu towards them. They were, for Bakufu officials, a means of taxing non-agricultural activities in the economy, and, in theory, they were a means of economic control, but did the control work? Did the system serve to keep down the prices of other commodities relative to rice in the interests of samurai consumers, or did it, on the contrary, permit monopoly power with the opposite effect? Enough people in the Bakufu thought it did the latter to lead to the ban on guilds in 1841, and enough people were convinced that it was not so to lift the ban in 1851. Okazaki sides strongly with the favourable view of the guilds and claims that both Akashi Shigeo's economic growth series, and a regression of his own devising, show that the economy functioned better—more growth took place—with guilds than without them, (though the regression shows much more convincingly that the economy does better without famines). His conclusion about the usefulness of guilds is reinforced (if only weakly) by data on inter-market price correlations. The correlations were lower in the period when guilds were banned.

So what was the guilds' contribution? They provided a substitute for the reinforcement of contract through the legal system. They did so by the simple device of efficiently blacklisting cheats—mutual pacts among guild members not to trade with agents whom any one of them had found to be dishonest, not to hire disloyal employees, not to put out work to weavers who stole yarn.

It seems to me that Okazaki's emphasis on the importance of the blacklisting device as a means of sustaining credit trading makes the 'basic perspective' of his book (p. 140) a pretty limited perspective. There is hardly a mention of the other functions of the guilds—the limitation of competition by price-fixing and work-hours limitation, so that guild members and their families could have the occasional holiday and did not have to sweat and slave for 24 hours of every day to avoid bankruptcy, mutual promises not to poach each other's employees or established customers, collective representation *vis-à-vis* political authority, mutually advantageous testing and certification of product

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