

## 談話室

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## Some Thoughts on a Recent Sabbatical in Japan

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As part of my sabbatical leave, I was a visiting Professor at the Japan Welding Research Institute of Osaka University, between April and August of 1990. This stay was so interesting and delightful regarding all aspects, personal and professional alike, that it is perhaps a natural wish to share this experience with the readers of this journal. While Japanese people do not need to learn about Japan, it might be of interest how this society is viewed by visitors; at the same time overseas readers of the Journal might find some useful information regarding their own travel plans.

During my stay I received a salary from the Japanese Ministry of Education (Mombusho) and had a furnished apartment at the International House of Osaka University. My host was Professor Akira MATSUNAWA, who has been most kind in arranging numerous laboratory and plant visits, a marvellous social program and first and foremost an outstanding technical infrastructure for my stay. I was of course no stranger to Japan and already had very close ties with many leading materials people, including Professors ASAI (Nagoya), YAGI (Sendai) and Drs. NAKANISHI and EMI (Kawasaki Steel), Professor FUWA, Drs. MIYAZAWA and MATSUMIYA of Nippon Steel and many others. Furthermore, the stay of Osaka University enabled me to renew one old friendship with Professor MORITA, the current President of the Iron and Steel Institute of Japan.

My duties at Osaka University were quite flexible, involving a series of lectures on the mathematical modelling of materials processing operations to the graduate student body and interacting with several research groups. From my standpoint, the technical highlight of the sabbatical was a chance to deliver the Yukawa Memorial Lecture at Nagoya University, which I managed to do in Japanese; I hope that at least some of the people understood some of my comments. From a research standpoint the sabbatical was an outstanding success because the extended stay enabled us to initiate several joint projects which are now coming to fruition. These include the modelling of laser welding and surface treatment problems with Professor MATSUNAWA, the

study of two phase flow with Professors MORITA and IGUCHI, as well as joint research on turbulence modelling with Messrs. SAWADA and TANI of Nippon Steel.

Living in Japan *nihon shiki* (Japanese style) was a wonderful experience because it provided one with an excellent basis for relating to all the questions and problems that have arisen regarding US-Japanese relations. Many books and articles have been written on this subject, representing a broad range of viewpoints. However, as with most facets of human life, there is no substitute for first hand experience!

It is very important to realize that notwithstanding the apparent similarities in the structure of many organizations, the Japanese society is very different from ours. This is true for government, industry and also for interpersonal relationships. "Formulae" or practices that work well in the US (or in Europe) may not be effective in Japan and *vice versa*. Merely lowering the price will not guarantee a sale in Japan—in fact, it may work the other way. *Yasumono* (cheap goods) is a derogatory term in Japan, while the term "*takai*" means both expensive and high quality.

The structure of Japanese society and institutions actively promotes long range planning and there is a strong, fully acknowledged interdependence between the various segments of the society. If (rightly or wrongly) you know you are tied to an organization for the rest of your life, this is a most compelling argument for long term planning. The societal norms strive to establish war or harmony, between labor and management, suppliers and customers and even competitors in a given industrial segment. I have even heard the notion that to some extent, the objective of the Japanese patent policy is to encourage the sharing of information rather than to protect the inventor's rights exclusively. Recent occurrences in the US, when corporations maximized their profits by laying off workers and then paying out large bonuses to upper management would be unimaginable in Japan. By the same token, the ratio: CEO salary/average wage is significantly less in Japan than in the US.

The very close interaction and community spirit between members of a group and between individual groups means that relationships take a long time to establish so that "snap decisions" are hardly ever made.

The corollary of dealing with a society where traditionally established long term relationships are the norm that it is very difficult for "outsiders to break in". An Osaka based enterprise may find it difficult to

establish a branch in Tokyo, so that foreigners starting businesses in Japan or seeking to market their goods and services face major hurdles; if these problems are compounded with ignorance of local customs, preferences and the language, these hurdles may become unsurmountable. Serious structural impediments do exist, but these may be addressed meaningfully only when these structures are fully understood.

In Japan, a very high importance is attached to education. Teachers of all kind are highly respected (the term *sensei* is so respectful that one cannot apply it to oneself!); the school year is much longer than ours and illiteracy is virtually unknown; bearing in mind the complexity of the Japanese writing system, this is quite remarkable. The average Japanese student knows much more about US history and the US society than even educated Americans know about Japan. The majority of university bound students, in addition to their quite heavy school commitments, receive a great deal of additional coaching in the "juku" or "cram schools". Admission to the top universities, which constitutes the path to a successful career, is solely on the basis of the scores obtained at independently conducted examinations. No alumni influence, athletic scholarships or attempts at a geographical balance. Whether this is "right" or "wrong" and whether the children of the well to do, who can afford the expensive private schools and the additional coaching are at an advantage, this arrangement certainly fosters a (kind of) meritocracy.

The other side of this issue is that the intellectual/managerial elite is the product of a very few universities so it is quite homogeneous. The influence of The University of Tokyo appears to be far more pervasive (perhaps like the *Ecole Polytechnique* in France) than comparable institutions in the US. There is a great deal of reservoir of good will in Japan towards the US; people speak with affection of the US and during my stay in Japan I cannot recall a single act of unkindness towards me. One little incident sticks in my mind: on crossing the road to the Osaka airport terminal in driving rain, an unknown man held an umbrella over my head.....

This is not to say that Japan is a perfect society; Japan is continually evolving and there are obviously serious stresses on people as they progress through the educational system and their careers; the high population density has its own problems and the close inter and intra group interaction leaves less room for

originality and individual fulfillment than in some other societies, like ours.

In addition to being unequivocally stimulating and enjoyable, this sabbatical has taught me very valuable lessons, that may have some general validity. First and foremost, the insights gained even over a 5 month stay and by expending a reasonable effort to understand Japanese history, society and language clearly prove that there is no substitute for a first hand experience! Japan and the US are very closely connected by numerous economic ties and it behoves both of us to maintain fair bilateral relationships. This means that we must know each others language, history and how our institutions function.

At present there is a major asymmetry in the relationship between Japan and the US, symptoms of which include a substantial balance of payments deficit on the US side, the fact that Japanese loans play a key role in sustaining the US budget deficit and a major rate of acquisition of US companies and real estate by Japanese firms. Simply put, we seem to buy a lot more of what the Japanese produce, notably cars, machinery and electronic products than the corresponding purchases of US made goods by the Japanese—about \$50 billion more per annum. Furthermore, with few exceptions, our exports to Japan are raw materials, rather than manufactured goods.

There are many reasons for this discrepancy, which include the vastly different structure and infrastructure of the societies, the fact that Japan has an industrial policy, while we only have one by default and that the Japanese people know a great deal more about us, than we know about them.

This short article is perhaps not the ideal forum to debate the desirability of having an industrial or technology policy in the US, although the results of not having had one are evident. It may be more appropriate to enumerate a few issues, where concrete action could be of considerable potential benefit.

#### What could the US do?

Since Japan is a major trading partner of ours, it would be highly desirable if we taught more of our young people the Japanese language. If we installed a Japanese teacher in each of or some 20 000 high schools in the US, the total cost of this would be less than 1.5% of our current balance of trade deficit with Japan!

We should encourage our college students to study Japanese and to spend periods of time studying in Japan—at universities or while working with companies.

A better understanding of the language, culture, and customs of Japan and of the Pacific rim countries should provide a much more realistic perspective for the establishment of truly bilateral relationships between us.

There is a genuine interest in Japan to promote a better understanding of the Japanese language, culture and society, through scholarships, the sponsoring of extended visits, summer jobs or term employment opportunities. We should take advantage of this and at the same time develop a substantial effort of our own in this direction. Only through such an understanding can we hope to develop a balanced bilateral relationship and address some of the critical issues that are beginning pose a serious disruptive threat.

A great deal has been written about Japanese management techniques and especially the "just in time" production arrangements. Many of these concepts cannot be immediately translated to US practice, because of the very major cultural differences between our societies. However, the basic philosophy of long term planning, mutual responsibility and major emphasis on human interactions (*jimmyaku*) should be readily adaptable and is indeed being practiced by many of our leading industrial organizations.

Last but not least, we ought to pay serious attention to the question whether the current infrastructure of our society is ideally suited to meet the challenges of the 90-s. The development of an industrial policy, perhaps the establishment of a "Supreme Economic Council" with an authority and access paralleling the National Security Council, much greater resources devoted to education and civilian research are issues worthy of serious consideration. We have to realize that we must function in a global environment; however, the vast majority of our corporate leaders have had very little international experience, have no language skills and what is perhaps worse, have little appreciation for those who have these qualities. Japan's success in the 1980-s and 90-s is to a significant measure attributable to the successful adaptation of ideas from our society to Japanese conditions.

#### What could Japan do?

While it might be tempting to solve our problems by asking "other people to take care of it", it would be

counterproductive to lay out a concrete plan of action or even appear to dictate domestic policy for another country. Rather, I would like to raise a few issues that will have to be addressed in some fashion:

- the major balance of payment deficit that the US has with Japan is a serious problem for both sides; this problem has to be resolved in order to avoid serious friction, which would be highly undesirable. This is really a bilateral problem.

- the highly efficient "*nihon shiki*" solution of problems, which uniquely suits the Japanese temperament and the fabric of Japanese society may not be immediately applicable to the internal scene.

- the internationalization of Japanese society, which has progressed very far in some instances, as reflected by the language (e.g. we drink *hotto cohee*, wear white *shattsu* and sleep on *shittsu etc.*) does perhaps not fully reflect the major international role played by Japan in the economic and the technological sphere.

- the tremendous help that Japan is providing in supporting Japanese studies in the US and encouraging US visitors and sabbaticals is extremely helpful and is much appreciated.

A temporary absence from one's home often provides an opportunity for reflection and the attainment of realistic perspectives. The fact the Japan has been tremendously successful in industrial development should not be regarded as a symptom of a deep seated malaise in our society. There is very much that is uniquely attractive in the US. Our easy informality, our ready acceptance of change, the sheer diversity of our society is very conducive to the nurturing and development of new ideas. The freedom and responsibility given to many of our young scientists and engineers in an academic setting has few parallels in the world.

The main challenge to us in the US is how to keep the best and be able to adopt and adapt new ideas from overseas — just as the Japanese have done so very successfully. A blend of what is the best in the US and in Japan would be a truly unbeatable combination. As a first step in this direction, more of our academic colleagues should make use of the very interesting opportunities that are available to us in Japan.

**Gambatte kudasai !**