Gaikokujin no Kenkyūkeiken:

Experiences of a Foreign Researcher in Japan

Jeffrey O. Willis

In August, 1988, I was at Los Alamos National Laboratory working in the then new area of high-temperature superconductivity (HTS), when an opportunity to actively participate in research at the newly founded International Superconductivity Technology Center (ISTEC) appeared. Our staff and management believed that having someone (soon chosen to be me) at ISTEC would be a good way to learn how a research laboratory in Japan, pursuing many of the same goals as our own group, functions on both a technical and managerial level.

ISTEC, for those not familiar with the organization, was established by MITI, the Ministry of International Trade and Industry, as a consortium of private companies and foundations to research and promote HTS, for a period of ten years, in Japan and throughout the world. The organization is supported primarily by MITI and the special supporting member companies (now 46), who may send two researchers to work at ISTEC's Superconductivity Research Laboratory (SRL) under the direction of Shoji Tanaka, Professor Emeritus of the University of Tokyo.

Because of differences in the legal systems in the United States and Japan, intellectual property rights and other contractual issues involved in this exchange took some time to be resolved. Finally, I arrived in Tokyo in late March 1990 to begin working at SRL for a period of one year, later extended for another nine months. When I started, I was one of three visiting foreign researchers; the other 95 researchers and division directors were Japanese. Not very surprisingly, the everyday language at SRL was Japanese. Before arriving, I had prepared for that situation and for life outside the laboratory by taking an intensive course in Japanese; after coming to Japan, I spent four hours each week in a Japanese language class. All of the directors and the senior researchers were, of course, fluent in English, and this made it possible to select and start my research immediately. For instance, I could not have learned how to run my experiment without the constant help of my colleague as he translated the computer screen into English for me. Staff at ISTEC also performed all of the mechanics of arranging housing, a task that would have been virtually impossible for a foreigner.

Because most Japanese companies want to hire young scientists and train them in-house, the fraction of researchers with BS or MS degrees at SRL was about three-fourths. The typical Japanese researcher moves from project to project throughout his career at intervals of about three years, creating a well-rounded, flexible employee. Thus a fair number of the scientists at SRL were new to the field of HTS when they arrived, but were often quite competent when they left. The group of researchers I worked with were all very bright, highly motivated, and hardworking. Although SRL's official working hours were 9 to 5:30, five days a week, most of us worked at least a few more hours each day and also worked on weekends as experiments and deadlines dictated.

There were two things outwardly very different about working in a Japanese laboratory, indeed, in most of Japanese industry: uniforms for everyone and one very large office—for about 80 of us, in the case of SRL. The idea of wearing a uniform became second nature after a few weeks and in general allowed easy identification with the group. The big office took a little more time to get used to, but it was possible to tune out most of the distractions and noise most of the time. When that wasn't possible, it was time either to find out what new result had just occurred, or to have a cup of coffee and catch up on the latest journals. The advantage of the *o-beya* ("big room") system is that communication is almost instantaneous.

As a member of Division I (Characterization and Analyses of Fundamental Properties), I was always included in the weekly meetings during which new results, administrative matters, and health and safety issues were discussed, and a mini-seminar given by a group member. For a long time, though, I have to admit I usually didn't have a very good idea what was going on since it was all in Japanese. However, I was never excluded from anything because I was a guest researcher, except perhaps from some of the red tape. This was true as well for monthly lab and division social functions, which are very important in Japan.

Finally, some comments for the reader who may be thinking about working in Japan. First, being able to read, write, and speak Japanese at almost any level will be useful. On the one hand, English is the language of science, and I had discussions in English with many of my colleagues and listened to "dry runs" of presentations. I also read many manuscripts and worked closely with my colleagues in both smoothing out their English, where needed, and more importantly, working on the logical construction of the arguments and improving the scientific content, just as I do with my co-authors' papers here at Los Alamos. On the other hand, communication improves on the conscious, and probably subconscious, levels when the visitor makes an effort to speak the native language. We expect visitors to the United States and our labs to speak English; it seems to me only logical then to try to speak Japanese when in Japan.

The second point is that Japan is quite far from the United States. This point is especially relevant for students or postdocs without a permanent position who go to Japan for several years with the expectation of returning to the United States. American industry, government, and academia, when recruiting in this age of increasing internationalization, really need to value more highly the overseas research experience, as our colleagues in Japan have done for many years. On the positive side, you will be treated as an "honored guest," and will learn much, both technically and culturally, as you try to be worthy of this title.

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