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Some Notes of an IBM—Princess Takamatsu Cancer Research Fund Lecturer

I recently (March 2–13, 1997) had the honor of being an IBM—Princess Takamatsu Cancer Research Fund Lecturer, which calls for meeting with scientists in three different cities in Japan—in my case, Tokyo, Kumamoto, and Kobe. This experience provided an incidental opportunity to learn more about the conduct of cancer research in Japan, and to take note of some similarities and differences between our two countries.

In all three institutions genetics, especially molecular genetics, serves as a connecting link between clinical and basic cancer research. Of course this is natural at the National Cancer Center Research Institute, where molecular genetics is viewed as a primary tool in cancer research. In Kumamoto University, there is such a keen interest in Developmental Biology and Genetics that an Institute has been created for that purpose, and the developmental biologists and cancer researchers perceive common interests that bring them together for collaboration in research and training. In Hyogo University in Kobe the clinical cancer researchers need genetic diagnoses, and geneticists are concerned with the basic process of mutation. The parallels between these institutions, and surely many others in Japan, and those in the U.S. are strong.

I was impressed in each institution by the large numbers of laboratory scientists with both the M.D. and the Ph.D. degree. This fraction is much higher in Japan than in the U.S. Further inquiry led me to the conclusion that the double degree is much more commonly undertaken in Japan. I was also struck by the numbers of surgeons involved in laboratory research. Postdoctoral fellows with just a Ph.D. seemed fewer, and I was told that funds for their support are limited, hence there is a tendency for them to come to the U.S. for further training. Although fellowships for Americans are less easily obtained in the U.S. than formerly, many post-Ph.D.'s gain their experience while being funded by research grants to their mentors. Such grants are also used to fund foreign graduates, whereas training grant funds cannot be so used.

In the U.S. we are very familiar with the fact that many young Japanese scientists undertake training in our country, so it is hardly surprising to meet such persons during a visit to Japan. However, I was surprised by the high incidence of such American-trained scientists in the institutions that I visited. On the other hand, virtually no American scientists have been trained in Japan, although some have worked for short periods of time in Japanese laboratories. Americans clearly know much less about the culture of the Japanese laboratory than *vice versa*.

I had long heard that laboratories in Japan were dominated by Professors, who were pictured as being the only truly "principal" investigators, and dispensers of funds to less senior investigators. The impression I gained on this visit was that Associate Professors in many institutions are now independent in the sense that they are in the U.S., although Assistant Professors continue to be dependent, and, in general, working on projects determined by a Professor or Associate Professor. Interestingly, in the U.S. we now find that some Assistant Professors, especially in clinical departments, are not completely independent, but rather working with a mentor. It appears that our two systems are converging.

The contributions of Japanese scientists in cancer research date back so many years, and have been so numerous and important, that Japan is considered everywhere as a leading nation in the field. One naturally expects, therefore, to find excellent programs there, and that is indeed the case. What might also have been expected is a more systematic organization of cancer centers, along the lines of the system of Comprehensive Cancer Centers in the U.S., which calls for programs in basic sciences, clinical sciences, cancer prevention and control, and cancer education. Two subjects, epidemiology and statistics, are uneven in each of our countries, with great depth in some Centers and much less emphasis in others. In the U.S., there is the problem that epidemiologists and statisticians are trained typically in Schools of Public Health, whereas clinical scientists and most basic biomedical scientists are not, and Cancer

Centers attempt to bring them all together. In Japan, most scientists in all of these fields receive at least part of their training in Schools of Medicine, but perhaps there are not enough persons trained in statistics and the epidemiology of cancer to meet the needs of Cancer Centers.

Finally, I note that so far as I know, there is no organization in the U.S. that supports a lectureship of this nature. On the other hand, I have known other American scientists who have lectured at multiple institutions on a single visit to Japan, a phenomenon that may reflect the unique geographical separation of Japan from the world's other largest scientific enterprises. In any case, it is a great opportunity for Americans and Europeans. I am happy that I had this opportunity to meet so many wonderful scientists in Japan, and to have a closer view of cancer research there.

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