Seventh US-Japan Joint Science Policy Seminar

Appendix A: Special Presentations

Remarks During the Opening Banquet of the Seventh US-Japan Science Policy Seminar: May 11, 1998

D. Allan Bromley

It is indeed a pleasure for me to be able to add my welcome from the United States to those of Mr. Nichols. We are delighted that so many of our Japanese colleagues have found it possible to join us for this Forum. The formal agreement for cooperation in science and technology between Japan and the United States dates from the early 1960s and is, I believe, one of—if not, indeed the earliest of those agreements. I have had the good fortune, both as a private citizen and as a government official, to be heavily involved in some of these cooperative activities. I was particularly pleased to participate in the fifth of these fore sponsored by the National Science Foundation and the Japanese Society for the Promotion of Science, that was held in Washington, while my very good friend Toshi Koshiba, was representing the JSPS in Washington.

Over the years we have learned an enormous amount from one another. We have learned what to do and how to do it, and on occasion we have learned what not to do; this, too, is important. I have always believed that cooperation and competition are not in any way mutually exclusive. However, I am equally convinced that success in cooperation depends critically on having very clear definitions and understandings at the outset of any cooperative activity. Let me illustrate by using what we all recognize as a much too simple linear model that involves a spectrum from fundamental research through applied research, to the development of generic technologies, and then, finally, the commercial exploitation of those technologies. Obviously, I am ignoring all of the vitally important feedback loops that make the real world much more complicated and rich in phenomena and interactions. Because of the intrinsic nature of the first three of these activities, however, it is impossible to predict where, when, or to whom the benefits will flow, and in consequence these are entirely appropriate for cooperative activities. When we move, however, to the exploitation and commercialization of specific technologies, then competition is to be expected and entirely appropriate. It is extremely important that we not let the cooperative and the competitive phases become entangled, because when that happens, trouble invariably ensues.

The chances of cooperative success also are greatly enhanced when the participants bring roughly comparable contributions to the activity, and this has been the case with the Japan-U.S.A. interactions over the past decades. It is also difficult to overestimate the importance of sensitivity to, and respect for, the different cultures and the national policies that the participants bring to the cooperative activities.

But today we live in an era of unprecedented change and accelerating change. This is very much the case with many of the developing nations. They are beginning to establish indigenous science and technology enterprises, high quality educational programs, and most particularly, are increasingly recognizing that the developed world has been engaged in a systematic brain

drain that has captured some of the best minds from the developing nations who now play important roles in the furtherance of the economic well-being of the developed world, rather than returning to their original homes where they would be expected to play leadership roles. All of this, together with the fact that modern communication makes it clear to even remote villages in the developing world that their quality of life is not at all comparable to that enjoyed by citizens of the developed world. Unless we are perceived to be working to reduce this differential, we will inevitably be faced with a planet in turmoil.

As two of the nations having the strongest science and technology enterprises on the planet, we have both the opportunity—and more important—the responsibility, to work toward helping the rest of the world gain access to the quality of life that science and education can provide. We can help the developing world avoid some of the mistakes that we have made, and we can help it to reach its goals without some of the intermediate steps through which we have passed—sometimes more or less by accident.

It is vitally important that we recognize that some of the most urgent of the problems facing the world society—problems such as the environment, disease, the need for clean water, and the like—in no way recognize national boundaries. By their very nature, such problems must be addressed on a multi-national basis.

Unfortunately, bilateral agreements are intrinsically much simpler than are multi-lateral ones, but while these multi-lateral interactions may be difficult, they are not impossible and they are increasingly important. I believe very strongly that as we work toward developing the multi-lateral programs, however, we should focus on fundamental research in science, on generic technologies, and on education, and specifically not in the areas involving technological commercialization, where competition is to be expected.

In sessions such as those that we are beginning this evening, we tend to talk somewhat glibly about technology transfer, as though it were a simple operation where a technology is identified in one location, in some unspecified way moved to yet another location, where it can be expected to function properly. Nothing is farther from the real world for two very vital reasons. First, technology cannot be transferred to a nation unless it has certain precursors in place. These include an agricultural economy—adequate to maintain a proper food supply—a stable economic and political situation, and an indigenous educational enterprise that has produced trained minds ready to receive the technology under discussion. And second, it must be recognized that technology can only be transferred in the heads of humans; this implies that we must increase dramatically the number of exchanges of personnel at all levels. Only in this way can technology really be transferred in a meaningful way. We need to understand in much greater detail than we now do, what the parameters are that underlie these exchanges. We do not, for example, understand why in the past decade the number of trans-Atlantic exchanges has decreased by at least an order of magnitude, while the number of trans-Pacific exchanges has increased by a similar factor.

These are among the issues that we will be discussing during the next two days of our forum. I have been much impressed by the wealth of experience, knowledge, and expertise that is

represented in the group of participants that our co-chairmen, Mr. Nichols and Dr. Inose, have assembled—with the help of Dr. Blanpied and his associates—and I look forward to a series of very interesting and productive discussions.

I should emphasize, however, that this is far from the first of Rod Nichols' and Bill Blanpied's activities, both individually and collectively, that I have found impressive. Tonight, however, I must say that Bill Blanpied has—for reasons that I don't think he knows that I know—really impressed me. Today is Bill's 65th birthday, and arranging a birthday party in such a delightful setting with so many old friends from so many places, many of them distant, is a very real accomplishment. I would then ask all of you to join me in wishing Bill Blanpied every happiness in what's left of his birthday, and many, many more birthdays in the years ahead.

Thank you, ladies and gentlemen.

US-Japan Cooperative Science Program: a Personal Retrospective

Remarks During the Closing Session of the Seventh US-Japan Science Policy Seminar: May 13, 1998

Norman P. Neureiter

As someone who, when growing up, always tended to be the youngest in his class or in almost any group, it is a somewhat painful change of role for me to be in charge of the history and nostalgia portion of this seminar. Of course, one compensating factor for being one of the old folks is that if you last long enough, there is no one around to correct what you say or can't remember correctly.

As you all know, this seminar is being convened under the US-Japan Cooperative Science Program. That program was one of the first, if not the very first, formal bilateral program for general scientific cooperation entered into by the United States Government in the post-war years. It had its birth in a unique political initiative.

In 1960, relations between the United States and Japan were under considerable strain. Although a Mutual Security Treaty had been signed between the two governments, the decision to do so was very controversial in Japan and led to numerous, sometimes violent, demonstrations and protests–especially among university students. About that time, Professor Edwin Reischauer of Harvard University, one of America's great scholars on Japan, wrote an article in *Foreign Affairs* entitled, "The Broken Dialogue." His argument was that the ties between the intellectual communities of the United States and Japan had broken down and were in urgent need of repair. That article turned out to be as important to US-Japan science relations as Vannevar Bush's *Science–the Endless Frontier* was to the support of basic science in the United States after World War II.

In 1960, the newly elected President, John F. Kennedy, who had read that article, named Professor Reischauer to be his Ambassador to Japan. And when Japanese Prime Minister Ikeda visited Washington in 1961, in the welcoming toast at the White House dinner in honor of the visitor, the President drew on an idea from his new Ambassador and proposed the creation of three new US- Japan Joint Committees to improve relations between the countries: (1) a Committee on Trade and Economic Affairs at the cabinet level, (2) a Committee on Educational and Cultural Interchange, and (3) a Committee on Scientific Cooperation.

The first steps were to name a co-chairman from each country, select the committee members, and identify Government agencies to provide necessary staff and financial support. The National Science Foundation was chosen to be the implementing agency on the US side, and the Japan Society for the Promotion of Science (JSPS), the Science and Technology Agency (STA) and the Ministry of Education (Monbusho) were designated as the involved agencies in Japan.

The US Co-chairman of the Joint Committee was a physicist, Dr. Harry Kelly, who had served as Science Advisor to General MacArthur during the occupation of Japan. Because he had consistently supported the rebuilding of the Japanese research community in the immediate post war years, Dr. Kelly was a greatly revered person in Japan. His approval of the salvage of Japan's small cyclotron, which had been located at RIKEN and was dumped into Tokyo Bay at the end of the war, particularly endeared him to Japanese physicists and gained him great respect in the Japanese scientific community.

Dr. Kelly's Japanese counterpart was Dr. Kankuro Kaneshige–probably Japan's leading scientific statesman of the time. Despite his slight frame and seeming frailty, he was a man of enormous stature and authority. To me, he seemed to be the head of almost everything having to do with science in Japan–university professor, Science Advisor to the Prime Minister, head of the Japanese Atomic Energy Commission, etc. He was also terribly nice to me personally. He liked to drive his own car, and one Saturday when I was in Japan he said he would take me on a drive around Tokyo and that for the whole day we would only speak Japanese with each other. No one could have paid me a higher personal compliment, since, in fact, my Japanese was at best embryonic at the time. I will never forget Thanksgiving dinner 1964, and the nearly one pound of sashimi and sushi that he and I consumed that day at Tsukiji–Tokyo's incredible fish market. But, I am getting ahead of my story.

In 1962, I was working as a research chemist for the Humble Oil and Refining Company in Baytown, Texas. By then I had decided that I was not destined to be a great researcher. On the other hand, I loved foreign languages, had taught Russian and German at the University of Houston, had served as a part-time Russian-English interpreter for the State Department as a hobby, and had had a year in Germany as a Fulbright exchange student. I was searching for a career that would let me combine science with international affairs. At a meeting of the American Chemical Society, I met Dr. Arthur Roe, an organic chemist who then headed the international section of NSF, and he hired me to work on the fledgling US-Japan Program. I arrived in early 1963, just as the complex, binational machinery was beginning to turn and joint activities were finally on the horizon. NSF had already set up an office in Tokyo housed in the Embassy Annex and headed by Bob Oetjen, a physicist from Ohio State University. The process of soliciting proposals for cooperative research and joint seminars was just beginning. Within a few months, I became the first permanent director of this US-Japan Program.

In Japan, Professor Kaneshige had been having a tough time with his university colleagues. There was great opposition to the new Joint Committee. It was accused of having been set up as an attempt by the US military to subvert the Japanese research community to US military purposes. Every proposal that was made went through a slow and painful recommendation and approval process–a supreme exercise in the fine Japanese art of *nemawashi*.

Interestingly, the program was being criticized in the United States as well as in Japan. We had been given $1 million from the NSF budget–a very tidy sum in those days. Inside NSF, the research divisions thought that we might distort scientific priorities and that weak science would be supported for the sake of a politically-motivated program. So we insisted on program review by the research divisions, even though we in the program also felt considerable pressure to actually do something, despite the great difference in levels of research facilities and support between the two countries at that time.

Jerome Wiesner was President Kennedy's Science Advisor. After a year or two, even he began to have misgivings about "science for political purposes" and took occasional pot shots at the program. At that time, Eugene Skolnikoff was Wiesner's international affairs assistant. I have always thought that this program played a role in stimulating him to write his seminal book on *Science, Technology and Foreign Policy*, which became a basic text for many future courses on science and public policy on US university campuses.

Because Japan's scientific work and the scientists themselves were not well known among American researchers, one of our early priorities was to organize joint seminars. Few Japanese could speak English (almost no Americans spoke Japanese), and all of our meetings were done with interpreters. Phillip Abelson, who was then editor of *Science*, after a bit of prodding, agreed to print a report on every seminar as a way of getting the message about Japanese science and cooperative research opportunities out to the US scientific community. But, perhaps most important was the close working relationship between the two K's–Kelly and Kaneshige–that nurtured this program into a solid cooperative enterprise that has endured for 37 years.

I left the program in 1965 and joined the State Department as a Science Attaché. In 1973, I left the Government and signed on with Texas Instruments. For almost 25 years–like Rip Van Winkel–I had nothing to do with Japan until Texas Instruments transferred me to Tokyo as Vice President of Texas Instruments Asia in 1989. That experience also led to my being appointed, in late 1994, by as the US Co-chairman of another Joint Committee established by the 1988 US-Japan Agreement on Science and Technology Cooperation–called the Joint High Level Advisory Panel (JHLAP). In a sense, my Japan experience had come full cycle.

Being present here in Hilo at this seminar has been for me a very pleasant and nostalgic experience. I am greatly appreciative of having being included. NSF's US-Japan Program has come a long way and a seminar like this one reflects how the program has grown and matured. The addition of Korean, Chinese and European representatives at this meeting also emphasizes the truly global nature of the scientific enterprise and the great importance of international, multilateral cooperation in addressing the scientific and technical challenges of the future.

Finally, I should note that one person in this room has been involved with the US-Japan Cooperative Science Program longer than I have–Masanobu Miyahara from NSF/Tokyo. He was there from the very beginning and has been a mainstay throughout the program. He was always my interpreter when I visited Japan in 1963 and 1964. It is his dedication and the commitment of others like him that have made this program the great success that it has become.