

*Report of a Trip to Hong Kong and The People's Republic  
of China: August 8-20, 1995*

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*Executive Summary*

This is a report of a trip to Hong Kong and the People's Republic of China. The Hong Kong portion of the trip was made at the invitation of the Hong Kong Radiological Technicians' Association to present the keynote address at the Roentgen Centenary meeting of that body. In addition, an ad hoc presentation was made as a seminar at the Hong Kong University of Science and Technology. The visit to Beijing was made at the invitation of the Chinese Ministry of Public Health for the purpose of exploring potential research collaboration.

*Hong Kong Roentgen Centenary*

This regional meeting was organized by the Hong Kong Radiological Technologists' Association (HKRTA) in conjunction with 12 other organizations from countries in the Eastern Asian region, including China, Japan, Singapore, Korea, Malaysia and Taiwan. In addition there was participation by a substantial delegation from the Philippines, and by the International Society of Radiographers and Radiological Technologists. Congress languages were English, Cantonese and Putonghua (Mandarin).

This meeting was built around the theme "Radiation and You" and was to commemorate the centennial of the discovery of x-rays as well as the 30th anniversary of the HKRTA (Appendix A). It was also noted in the press release that "The activity coincides with the 50th anniversary of the world's first atomic bombing." Planned dates were August 12-14, with introductory ceremonies on August 11. Venue was the Hong Kong City Hall, which has conference facilities and

is centrally located in the city. A major objective was public education; the exhibits were open to the public, and considerable preliminary publicity was directed towards inviting the public to attend the meeting and to walk through the exhibits. An anticipated 10,000 members of the general public were expected to visit the exhibits, in addition to the 150-200 scientific delegates. Fate, however, intervened in the form of inclement weather which led to *ad hoc* scheduling changes in the program for the meeting. Low level typhoon warnings were posted on the morning of August 11. By afternoon, the warnings had escalated to the next level, although there was reasonable likelihood that the storm would completely by-pass Hong Kong. However, by the evening of August 11, the warnings had escalated to the next level, and the evening activities were terminated somewhat abruptly by the impending storm, whose leading edge had already arrived with heavy winds and rainfall. Sessions for the following day, August 12, were canceled and moved to Sunday, August 13, and the meeting was extended by one day. As Sunday is considered by many Hong Kong residents as a day to be spent with family, attendance by the general public was considerably reduced; estimated attendance was informally reported at two to four thousand rather than the 10,000 that had been expected.

The keynote talk was entitled "X-rays and X-ray Protection: Looking Backward Over a Century of Progress for the Benefit of Mankind" and was apparently well received. The talk was delivered from slides (approximately 90 in number) and was apparently well received. There was no written version required, and none was prepared. Publication of proceedings of the meeting are not contemplated. Professor Kazunori Kodama, Chief of the Department of Clinical Studies of the Radiation Effects Research Foundation, presented an excellent review paper entitled "Health Effects of Atomic Bomb Radiation." In his presentation he noted that it appeared there would be no followup of the next generation of survivors, perhaps somewhat wistfully observing that this would be an opportunity lost for all time.

In subsequent informal 'corridor session' conversation, Professor Kodama elaborated on the reduced funding for RERF and on the changed relationships between the U.S. and Japanese. He specifically mentioned the impending change of oversight from the National Academy of Sciences, noting that this was a good and working relationship and that there appeared to be no valid rationale for the change. The clear implication was that the Japanese were rather insulted by the proposed change, in part because it was done unilaterally.

Selection of the theme of the meeting was driven in part by public concern in Hong Kong regarding the nearby Daya Bay Nuclear Power Plant, an operating power reactor located in southern China and the plans for construction of several more reactors in southern China. Public concern is centered around potential environmental impacts, primarily from environmental radioactivity releases, from both routine operations and in the event of an accident. Accordingly, the program included a Putonghua language presentation of a paper on the environmental impact of the Daya Bay facility presented by Professor Shen Jun Xiong of the Hong Kong Nuclear Investment Company.

A second and somewhat modified presentation of the keynote was delivered as a physics seminar at the Hong Kong University of Science and Technology in response to an *ad hoc* request from Dr. Paul Chan. This was done on the Friday following the Beijing visit, no small feat in that it necessitated itinerary changes which were graciously arranged by the Chinese.

#### *Visit to the Chinese Ministry of Public Health*

A visit was made to the Ministry of Public Health of the People's Republic of China to explore potential areas of collaborative research. This visit was at the invitation

of Professor Wei Kedao, Director of the Laboratory of Industrial Hygiene (LIH). Initial efforts at securing a visa via the Chinese consulate in San Francisco were unsuccessful despite a formal letter of invitation from Professor Kedao. This necessitated an additional letter of invitation and apparently some behind the scenes wrangling among various Chinese governmental agencies. The second visa application was made in Hong Kong and the visa was granted without question, and the remainder of the visit passed without incident.

The LIH was founded in 1965 as a separate institute directly under the Ministry of Public Health. Organizationally it has eight divisions and its activities are largely devoted to radiological health studies (Appendix C). Somewhat more than half of the staff of approximately 300 are professional scientists or physicians. The LIH is the primary organization within China carrying out research and related activities with respect to radiation protection. As such, it carries out important activities related to radiation protection standards, monitoring, and data collection and research, including radioepidemiologic studies. In addition, it provides emergency radiological response support, but is not the 'regulatory' body for the PRC.

Meetings were generally open, cordial, and free ranging. Language problems were minimal as most of the Chinese present had at least some comprehension of spoken English, and a translator was always present. The initial meeting was held with leaders -- ie various Division Heads -- of the LIH, and included Professor Wei Kedao, Director of the LIH; Associate Professor Yue Barong, Director of the Division of Science and Technology; Professor Chen Tiarishan Ren, Director of the Division of Environmental Health Monitoring; Professor Zhou Xiang Yen, Director of the Division of Radiation Dosimetry, and Professor Chen Xing-an, Director of the Center for Hygienic Evaluation of Rare Earth Element Exploitation. This initial 30 minute meeting was largely devoted to polite conversation and the discussion of

arrangements and scheduling for the remainder of the visit. Professor Wei set the tone for the largely low key discussion. The exception to the low key nature was provided by the youthful Professor Yue, who unlike the other Division heads was quite outspoken and who repeatedly asked a number of pointed questions regarding the political meaning of the proposed visit of President Lee of Taiwan to the U.S. In reply he was told that the meaning had no political significance whatsoever and that Lee, as would be true of any private citizen of another country, was free to visit his American alma mater and that such a visit in no way constituted a state visit. [An explanation was given of the relationships of alumni to their universities in the U.S., including a discussion of homecoming.] President Clinton's 'one China' policy statements were reiterated to him. The intensity of Professor Yue's statements were somewhat surprising in view of the low key tone of the meeting, and in view of the deference of the other division heads to Director Wei. Apparently, this was something of great import to Professor Yue as he raised the question on at least three other occasions during the three day visit, leading to speculation as to his motivation in pursuing this topic.

Following the initial meeting, a seminar was presented to approximately 35 professional staff members of the LIH. At the request of Professor Wei, this seminar was two hours in duration. Translation was provided by Professor Chen Xing-an. Professor Chen had spent two years carrying out research in the U.S. and had an excellent command of English as well as an excellent understanding of and background in radiation protection and radiation biology. Judging by the question period after the seminar and numerous comments made later, which seemed to go beyond what would be expected on the basis of politeness, the presentation was well received.

Subsequent discussions with Professor Wei and the various division heads were

highly illuminating. The Chinese were deeply interested in the collaboration between the USTUR and the Russians, and asked a number of questions regarding the exact nature of the collaborations and the names of the collaborating Russian scientists. There was a clear indication that the Chinese did not want to be 'scooped' in any way by their Russian counterparts. In the discussions, specific mention was made of previous visits from American scientists and previous and ongoing collaborative efforts. Thus, Professor Wei noted that John Boice, NCI, was currently funding case control radioepidemiologic studies relating to radon exposure in the Kan Su province, and that approximately three years prior had participated in a similar study in Ganshu province utilizing dosimetric measurements made by the Chinese with CR-39 and e-perm. Also mentioned very positively were visits by Charles Meinhold, President of the NCRP, and collaborative studies of chromosomal aberrations in high background areas with Tore Straume, Lawrence Livermore National Laboratory.

The discussions were largely devoted to exploration of mutually beneficial joint research possibilities. Considerable interest was expressed in carrying out collaborative studies in areas of high natural background (thorium) in which population doses would be established through tissue sampling and radiochemical analysis. Studies have been made by Professor Chen of miners exposed to ores containing 0.04% Th. More than 1000 cases have been measured by breath analysis. Professor Chen would like to work with the Registries to measure the Th content of bone ash and correlate these findings with breath analysis measurements made during life. Professor Ren noted that in areas of south China where there are high natural Th concentrations there is an excess of nasopharyngeal cancer, and proposed a study to determine if this was attributable to or could be correlated with Rn-220 exposure. The possibility of including the high Th background areas in Brazil and India in such a study was also discussed. Such a study could determine

risk coefficients associated with alpha radiation exposure, and could thus produce important and practical findings.

In response to a query regarding plutonium deposition in people, it was made clear that occupational exposure falls under the purview of another ministry (Nuclear Industry Ministry) and that the LIH was essentially limited to consideration of the general population. Considerable interest was evinced in determination of plutonium concentrations and dose in the general population. Plutonium was clearly a subject of interest to the LIH senior scientific staff, who were quite willing to discuss it, but only after the topic had been broached.

There was particular interest in Chinese scientists from LIH being sent to the U.S. for training stints of various durations, working alongside their American counterparts. The Chinese clearly recognize the need for expanded educational opportunities and for state-of-the-art experience for their junior staff. Professor Hue in particular pushed for a sabbatical opportunity of as long as a year for a young chemist, Ms. Lu, to come to the Registries to learn the ins and outs of actinide (and particularly plutonium) chemistry. Ms. Lu has been engaged in research activities primarily involving tritium, with a limited amount of work involving fission products and even less related to actinides. The push to get her to the U.S. was obvious; when I initially showed only moderate interest, the topic was brought up repeatedly, and kept very much in the forefront. Although basically pleading poverty, Professor Wei indicated that in this instance, cost sharing was a likely possibility. And, much to my surprise, Professor Hue and Ms. Lu accompanied me to the airport and did a very creditable sales pitch en route regarding the potential for her coming to the Registries to work on actinide chemistry.

The LIH is situated in a large older building that was reminiscent of a large

high school built 50 or more years ago going to seed. The building has stone or concrete floors and old wooden laboratory benches and furniture. Laboratory space is adequate, perhaps even generous, but instrumentation is in short supply as evidenced by the fact that much of the instrumentation was in use elsewhere so was not available for inspection. Quality of work that is done appears high, especially when considered in the context of available instrumentation.

It is clear that the LIH desires to enter into a collaborative relationship with WSU and the Registries. From what might be termed the exit interview and in all prior discussions, there was an apparent genuine interest in finding common areas for collaboration. Professor Wei expressed a strong desire to be invited to WSU for a reciprocal visit and indicated that sending staff for training and joint work in the U.S. was a high priority.