My memories of Kojiro Nishina-sensei and our collaboration

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I must start these recollections with an explanation, which amounts to an apology. In these memories, I will refer to Nishina-sensei colloquially as “Kojiro-san”. I know it is against traditional Japanese customs to use first names and omit the title, but I hope the reader will find it justified. Kojiro-san and I got into the habit of calling each other by first names very soon after we met the first time. It arose very spontaneously from his open and friendly personality and knowledge of Western culture. To try to get further justification for this, I can mention that in our article about his father, the late Yoshio Nishina-sensei, in the annual booklet of the Swedish Physical Society in 2004 (see Ref. [2]), we referred to him also as “Yoshio”, with a similar explanation. I feel that I do justice to Kojiro´s memory and the memory of our friendship if I keep the friendly and informal style of our relationship. All other persons will be mentioned with full names and titles.

Everything started with my very first visit to Japan. It came out of the blue. Kojiro-san decided to invite a researcher from Europe to visit his laboratory, by applying for support from JSPS. At that time, we did not know each other personally and had never met. He asked some colleagues, primarily Masaharu Kitamura-sensei of Tohoku University, and a colleague of mine in Studsvik, Ritsuo Oguma-san, who, through their contacts, could recommend suitable people to invite. They recommended me to him, and luckily, he trusted in the judgement of his colleagues. His application to JSPS for a visiting fellowship was successful, and I spent nearly three months, from mid-May to early August, 83 days in his laboratory in Nagoya in 1990. I had never been to Japan until then, and since the prospects of getting there were very small for me, it was a very exciting development and a big adventure into the unknown[1].

Kojiro-san turned out to be a wonderful host and a wonderful person, kind, friendly, with a warm heart. In the light of the fact that we had not known each other before, the tremendous hospitality I received from him, i.e. to a person whom he knew only from publications, seems nearly unreal. He took me to visit countless places, including KURRI (Kyoto University Research Reactor Institute, now re-named to KURNS), which was very crucial for later contacts, as well as to universities, institutes such as JAERI, to meetings in both Kansai and Ibaraki, to mention only a few. I also had the possibility to visit Masaharu Kitamura-sensei at Tohoku University. It goes without saying that all my extensive contacts, which laid the ground for my later visits, stem from that very first visit. In addition, he was tireless in explaining to me the subtleties of Japanese culture and guided me both professionally and privately in all possible matters that a person new to Japan would need.

This list would already be sufficient to indicate what a generous person he was to devote so much time and effort to a first-time visitor. But here comes one circumstance that makes it manyfold times more valuable. My visit was in 1990, which marked the 100th anniversary of the birth of his father, Yoshio Nishina. Yoshio Nishina-sensei was born on 6 December 1890, thus in December 1990 there was a big international symposium in his honour in Tokyo. A lot of documents, including Yoshio Nishina's work, correspondence, notes etc., had to be processed, collected, for presentation at the conference and distributed as printed material, and so on. And yet, Kojiro-san, amidst all these preparations, had time to devote to introducing a previously unknown person to Japanese science, technology, and culture. I

[1] To the interested reader, there is a small piece I wrote for the JSPS Stockholm Office Newsletter, in which there is an illustration of the small chances of visiting Japan (“Why don't you come to Japan?")

cannot understand how he could manage with that, even if life was less hectic in 1990 than now. I often think of this and simply wonder. I am eternally grateful to him for all he did for me during that visit, which probably should have been devoted fully to the preparations for the 100th anniversary of the birth of his father. When I write this, it strikes me that it never occurred to me to mention this to him, and now it is too late.

The visit to KURRI was particularly interesting for several reasons. KURRI had experimental facilities, including research and education reactors, which Nagoya University did not have. Later, even we in Chalmers had the advantage of this, which I will mention below. Also, Keiji Kanda-sensei of KURRI wanted me to give a talk about nuclear energy in Sweden, in view of the national vote that it should be phased out in Sweden in the long run, with a government prediction that this should take place by 2010. This subject came up in our collaboration several times later on.

When I made my first visit, it was not clear whether I would make any more visits, because I was not in academia at that time. The former nuclear research laboratory of Sweden, Studsvik, where I worked, lost its role after a national vote on the future of nuclear energy in Sweden in 1980. But only a year later, I obtained the chair of Reactor Physics at Chalmers University of Technology in Göteborg. This suddenly opened up the possibility of a long-term collaboration with Kojiro-san and with other Japanese colleagues, as well as subsequent visits. (As a sideline, I cannot exclude that the first visit to Japan on the invitation of such a distinguished scientist, which happened before the job interview, contributed to my receiving the chair).

After having started in Chalmers in 1991, I became eligible to apply for JSPS fellowships by myself, and this way to visit Japan repeatedly. I could also devote more time to research and publication. One outcome of this was a paper in the Journal of AESJ already in 1991, with the title “The Swedish Energy Situation and the Nuclear Debate”. The idea of such a paper was suggested by Kojiro-san, who also translated it to Japanese, and it was published in Japanese (Ref. [1]).

The first opportunity to a new visit arose already in 1992, when the fall meeting of the AESJ was held just in Nagoya. It was a very precious reunion with my former host. Soon came also a possibility to reciprocate the kind hospitality of Kojiro-san. In 1979, which marked the 150th anniversary of the foundation of Chalmers, the institution of “Anniversary Professor” (in Swedish: Jubileumsprofessor) was established. Every year a few internationally outstanding researchers were invited, after a very competitive selection process, to spend 2 – 4 months in Chalmers. Kojiro-san became a Chalmers Anniversary Professor in 1993. Due to his many obligations, he could not spend 4 months in a row; rather, he visited Chalmers for two months in the fall of 1993 and another two months in late spring 1994.

It was during his two visits to Chalmers when my already existing interest in the fascinating life and achievements of his father was elevated to a new level. Kojiro-san gave a departmental seminar about Yoshio Nishina-sensei’s life and works, but also told many stories informally during coffee breaks and privately to me. It was during his visit that the plans of a later article started taking shape.

I made further visits to Japan in 1995 and 1998 with support from JSPS. Kojiro-san retired from Nagoya University in 1995, and in 1998 he was already working at the Aichi Shukutoku University of Contemporary Arts and Sciences. My host in 1998 was his former Associate Professor, Yoshihiro Yamane-sensei. With this came also another possibility for a further

deepening of the two-sided character of our collaboration: Yamane-sensei spent 7 months in Chalmers in 1998 as a visiting professor. He became also the successor of Kojiro-san, and this gave a solid ground to continue our collaboration.

Yamane-sensei also told me about the possibility of visiting KURRI as a visiting scholar. This indeed happened by the courtesy of Seiji Shiroya-sensei, who arranged an invitation and acted as my host with unlimited hospitality and help. I spent three months in KURRI, Kumatori, between mid-March to mid-June 1999. This stay was unforgettable for several reasons. It was the first time for me to stay in a smaller community, far from big cities, which gave an insight into Japanese life in a different, deeper way. Also, it was during that visit that I could experience the Sakura period for the first (and so far last) time. KURRI is famous for its cherry trees and is open to the public on the weekend during the Sakura period.

A decisive memory during this visit was my first trip to Hiroshima, where the spring meeting of the Atomic Energy Society of Japan (AESJ) was held. Kojiro-san was also attending, because he received an award from AESJ for editing a book on nuclear energy for the public with the title “The Pioneering Potential of Nuclear Energy in the Coming Century” (Fig. 1). On the second day of the meeting, while the others were making a study trip, Kojiro and I visited the historic Memorial Park by walking together on the road past by the world-famous Genbaku Dome, through the Aioi bridge (See Fig. 1 below) and into the memorial complex which is on an island of the river. Even for Kojiro-san, this was only the second time he visited the city; he visited Hiroshima once before, in 1957, i.e. more than 40 years prior to our tour. While walking through this historical place, watching documentary films inside the memorial, and looking at the exhibition, Kojiro’s memories of the war period came to mind. It was an indescribable experience, like being part of history. Hearing the memories directly from such a historical witness, under such circumstances, made a very deep and permanent impression.

Figure 1. Left: Kojiro with the plaque of the prize from AESJ. Right: Kojiro at the Aioi bridge (1999)

It was also during the 1999 visit that I first met Tomoko Nakanishi-sensei, who later became a very important link to Japan. It was at the 6th World Conference on Neutron Radiography, held at the then-new Kansai International Airport, that we were asked to chair a session together. But that first meeting was confined only to the conference, and we

regained contact only later.

The move of Kojiro-san to Aichi Shukutoku University did not change anything regarding our contacts and collaboration. During my next visit, where my JSPS host was already Shiroya-sensei in KURRI, I also visited Kojiro-san in Nagoya. Shukutoku University was not a technical university, so he arranged that I should give a popular science talk to the students on a subject which I was engaged in, namely the role of famous women scientists in nuclear physics, whose achievements were not fully (or sometimes at all) acknowledged, such as in the case of Lise Meitner. I gave a talk with the title “Nuclear energy – was it discovered by women?” (Fig. 2). I talked in English, and Kojiro-san translated it to Japanese.

Figure 2 The lecture at Aichi Shukutoku University of Contemporary Arts and Sciences, simultaneously translated by Kojiro-san.

Kojiro-san’s English was outstanding. In this respect he was an exception, since at the time of my first visit to Japan the English knowledge of an average person was much lower than in Europe, and especially compared to Sweden. The secret for his excellent English was probably a combination that he studied in the US (he got his PhD from the University of Michigan, whose nuclear engineering program is constantly ranked as #1 in the US, preceding MIT), and that he possibly inherited it from his father. Yoshio Nishina’s command of languages was famous. He spoke English, German, and even Danish fluently and understood when small children on the street in Denmark talked about him and Oskar Klein, his co-author of the Klein-Nishina formula.

A next step in our joint efforts came in 2004. Kojiro-san acquired funds for me to attend the ISRE04 (International Symposium on Radiation Effects), which was held in Nagasaki. This meant I had the possibility, after Hiroshima, to visit the second city hit by a nuclear weapon. But it was also there that I met again Nakanishi-sensei, and reconnecting with her was the start of a longer contact.

However, the attendance at ISRE04 was only part of the trip. By that time, our plans of writing an article about Kojiro’s father, Yoshio Nishina, had become crystallised. Hence, Kojiro-

san arranged a trip to Satoh-chow, the birthplace of his father, with a visit to his father's birthplace and to the Nishina Memorial Museum, as well as to Kurashiki, to meet members of the Nishina family living there. In the Nishina Memorial Museum, I got invaluable documents, such as copies of the handwritten derivation of the Klein-Nishina formula by Yoshio Nishina-sensei, and also copies of his correspondence with famous scientists of the time, including Swedish ones.

This material proved immensely useful to complete our article on Yoshio Nishina. We wrote an article for the annual booklet "Kosmos" of the Swedish Physical Society, which appeared in the 2004 year's issue (Ref. [2]). The article was published in Swedish, but the original English text, which was the basis of the Swedish translation, is found at the link in Ref. [2], together with a link to the Swedish version.

The efforts to explore the achievements and the legacy of Yoshio Nishina continued the next year. I visited Japan again, and then we visited both the old and the new RIKEN. The old RIKEN is the place where Yoshio Nishina worked, had his room, and built his cyclotrons. These visits were again like out of this world. Yoshio Nishina's office is preserved, even a blackboard with his handwriting with a list of the most prominent scientists of the time, with whom he presumably had a meeting. We saw a mock-up of the smaller of the two cyclotrons he built, and we even met the widow of one of the collaborators of the Nishina laboratory. Without Kojiro-san, I would have never been able to visit such a historic venue.

In the New RIKEN, we visited an exhibition of the Nishina Memorial Foundation. I got a copy of the proofs of the first article about the Klein-Nishina formula, and we saw a mock-up of the second cyclotron. The copy of the proofs provided further insight into some details of the derivation of the famous formula, about which I presented a paper at an activity seminar of the JSPS Stockholm Office a few years ago. The proceedings were published by Springer [3]. In that paper some photos from the visit to Satoh-show, Yoshio Nishina's birthplace and the Memorial Museum are included.

My visits to Japan continued and I met Kojiro-san both in 2006, 2007, as well as in 2009. This latter was the first time I met him in Yokohama, to where he and his wife Kyoko-san moved from Nagoya. However, the next important step in our contacts was not in Japan, rather in Sweden, when he was elected a Chalmers Honorary Doctor (Doctor Honoris Causa) in 2010. This was well deserved and a very nice appreciation of both his scientific career, as well as his contribution to the contacts and scientific exchange between Japan and Sweden. The inauguration procedure took place during several days in late May in the best Swedish academic traditions. Kojiro first had his doctoral hat tested and adjusted at Sweden's only academic hat manufacturer, and checked the tails he had to wear during the ceremony. Next day it was time for the Honorary Doctors' lectures, followed by a dinner at the "Chalmers' House", the place where the founder of our university lived. On the final day, Saturday the 22 May 2010, there was a rehearsal of the ceremony in the Concert Hall of Göteborg in the morning, and finally the ceremony took place in the early afternoon at the same place. The event concluded with a gala dinner at the Student Union restaurant at Chalmers. A photo of Kojiro-san being promoted to Honorary Doctor in the Concert Hall is shown in Fig. 3 below.

One further important milestone was a meeting in Sweden in early 2016. The JSPS Stockholm Office Alumni Club, of which I was a board member, had its 10th anniversary in 2015. This was celebrated in early 2016 with a two-day meeting. One day was devoted to the 10th year anniversary, and the day after, there was the annual meeting of the Sweden-Japan

Figure 3. Kojiro-san being promoted by Professor Lars Brink to be an Honorary Doctor of Chalmers in the Concert Hall of Göteborg on 22 May 2010.

Academic Network, organised jointly with the Royal Swedish Academy of Sciences and JSPS. Kojiro-san and Nakanishi-sensei were plenary speakers on both days. Below is a photo of the three of us in the lobby of their hotel in central Stockholm during the anniversary event.

Figure 4. Kojiro-san, myself and Nakanishi-sensei in Stockholm in early 2016 at the JSPS event.

With the passing of time, and Kojiro-san being away from Nagoya and less active professionally, our contacts became also more private. Since I continued to visit Japan with a very few exceptions every year, we had still good opportunities to meet. On some occasions we met together with Tomoko Nakanishi-sensei, with whom my contacts became more intensive during the years, and who also hosted me for several visits in Tokyo. The role of my hosts on JSPS visits was shifted to Akio Yamamoto-sensei, who was the successor of Yamane-sensei in Nagoya, to Hidetoshi Konno-sensei of the University of Tsukuba, and to Tsuyoshi

Misawa-sensei of KURRI.

A personal reminiscence of our more private contacts is that Kojiro-san was interested to follow up the life of our family. On the first visit in 1990 we had our son Raymond with us, at that time approaching 5 years. Kojiro-san, who remembered Raymond very well, was delighted to hear when we got our first grandson, Jaymie, of whom he was much affected simply through photos. Tomoko Ono-san, the permanent secretary of the Director General of KURRI/KURNS, kindly mediated photos of Jaymie in hard copy, in which Kojiro-san had much pleasure.

Due to the Covid-19 pandemic, I could not visit Japan in 2020 and 2021. When visits after the pandemic again became possible, I met Kojiro-san close to his home in Kanazawa-bunko. Our last two meetings were in 2023 and 2024. His son, Eiichi-san, arranged that we could meet in some small restaurant or a coffee shop close to Kanazawa-bunko station. Although time and age started to take its toll, our meetings were always cheerful and enjoyable and in the spirit of the history of our long friendship. Last year, in 2025, I could not visit Japan, and hence I lost my opportunity to see him for the last time.

In this modest piece, I tried to give an overview of my memories of a nearly four-decades-long contact, collaboration, and friendship with Kojiro-san, which literally changed my life by giving me a unique possibility to get insight into life in Japan and get friends for life. For obvious reasons, the description is not complete. I did not take up events not directly related to him, such as the opportunity of Swedish students to do laboratory exercises in KURRI, after the two last research reactors in Sweden were shut down in 2005, or my receiving the Order or the Rising Sun from the Government of Japan in 2016, and many others. These were the courtesy of other people, not named here, for which I apologise. But it is clear that none of these events would have been possible without that decisive first visit to Japan in 1990 which, as I said before, was an act of chance, and the trust from Kojiro's side. I cannot be grateful enough that I got this chance, but I hope and trust that I have used this gift from above well and to the benefit of both of us and many of our friends and colleagues. I miss Kojiro-san deeply and will keep him in my memory forever. May he rest in peace.

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