

## Minutes of the First ABCC/RERF History Forum

Speaker: Mr. Yoshio Okamoto, former Chief of Administration at the Nagasaki Laboratory

Moderator: Mr. Takanobu Teramoto, Executive Director

Date: 15:00 - 16:10, April 18 (Thurs.), 2013

Place: Videoconference: Third-floor Conference Room in Nagasaki laboratory and Auditorium in Hiroshima laboratory

(Honorifics omitted; parenthetical statements represent complementary information for clarification purposes)

Teramoto: This ABCC/RERF History Forum series was organized for us to have opportunities to listen first hand to the experiences and stories about ABCC/RERF surveys of A-bomb survivors from former ABCC/RERF employees. We invited Mr. Yoshio Okamoto as the first speaker.

Mr. Okamoto was employed at ABCC in 1956, engaged in the work of surveying A-bomb survivors, and then transferred to the Secretariat. He worked for ABCC/RERF for a total of 36 years until his mandatory retirement age in 1992, after serving as Chief of Administration at the Nagasaki laboratory.

I look forward to hearing his experiences of ABCC's surveys of A-bomb survivors, in particular, the master sample questionnaire (MSQ) and shielding history (SH) surveys as a leading field investigator in such surveys.

Mr. Okamoto, as a starter, would you tell us how you joined ABCC?

Okamoto: I first got my position at ABCC through the good offices of Dr. Noble (Kenneth B. Noble), then Chief of the Department of Biostatistics. I had had some experience delivering supplies and equipment to the Occupation Forces, and my communication skill in English proved useful in getting the job at ABCC.

Teramoto: You were assigned to the MSQ-related work in your first year of employment at ABCC, and placed in charge of the SH survey and a survey of A-bomb survivors from your second year. What were those surveys like?

Okamoto: In my first year at ABCC, as a field investigator, I interviewed subjects of the special census conducted in 1950. The city of Nagasaki was divided into several blocks, and field investigators in charge of the same block got on the same jeep and after arriving, each conducted a personal interview with an A-bomb survivor and then went back to ABCC. We were not always welcome when we visited survivors at home and were sometimes greeted with a flat refusal. We had a hard time establishing a friendly relationship for them to be willing to answer our questions.

Teramoto: How about the SH survey?

Okamoto: Interviews were far easier in the SH survey. In the SH survey, we conducted interviews in order to record information on the houses they had lived in at the time of the bombing, to know where they had been exposed to the A-bomb. Interviewees, probably feeling nostalgic about their old houses, took interest in the survey and were cooperative.

Teramoto: In the MSQ survey, field investigators visited A-bomb survivors for the first time

without prior appointment, and in the SH survey, those survivors had at least one visit from an ABCC field investigator prior to the survey. Did you feel any difference between the MSQ and the SH surveys?

Okamoto: Many MSQ subjects did not want to recall the atomic bombing, so the survey was difficult. Yet, employees in the Department of Medical Sociology (presently the Department of Clinical Studies), who had to ask A-bomb survivors to come to ABCC for health examinations in an effort to recruit participants in the ME-200 clinical study (ME-200 group: the original AHS cohort), must have had a much harder time.

In the SH survey, once survivors understood our work, which was to make drawings (cross-sectional drawings of houses and floor plans), they became friendly and cooperative. People in Nagasaki were kind and gentle.

Teramoto: Do you think people in Nagasaki are generally kind and gentle?

Okamoto: Yes. I am originally from Fukuoka Prefecture (a prefecture adjacent to Nagasaki), and I think that people in Nagasaki are kind and gentle in nature.

Teramoto: What kind of preparation did you do to visit survivors (for the SH survey)?

Okamoto: We brought aerial photographs (about letter-size copies of photos) of areas in which their houses were located. The aerial photos interested them, helped us feel closer with each other, and made them cooperative. Sometimes they provided us with extra information on their neighborhood.

Teramoto: Did field investigators receive any instructions or guidance about surveys from researchers?

Okamoto: Back then, researchers were dispatched from the U.S. Oak Ridge National Laboratory (ORNL) to ABCC (in Hiroshima) as part of the collaboration between ABCC and the ORNL. Field investigators in charge of the SH survey received training at the ABCC Hiroshima laboratory on the survey method and the method for drawing and recording the houses. This system enabled us to have standardized survey methods. Occasionally, consultants from the Hiroshima laboratory stayed in Nagasaki for a long term.

Teramoto: How often did you visit survivors for the SH survey?

Okamoto: We visited them every day.

Teramoto: How did you make drawings in the SH survey?

Okamoto: The SH field investigators were selected from employees based on an aptitude test, which included drawing. We learned necessary details about Japanese houses from an employee qualified as a Architect, First Class before we visited survivors. We made drawings on the scale of 1/100 based on the interviews. If questions arose in the course of drawing, we revisited them. Sometimes we visited one survivor several times before the drawings were completed. The average number of visits to a survivor was about three.

Back in the drawing room, we made drawings using drafting squares and triangular squares on drawing boards (100 cm by 80 cm).

The city of Nagasaki had several district offices, and ABCC employees were stationed in those offices to collect information (on residents) in that district. The Nagasaki city government was cooperative.

The information collected in the SH survey was later used for the estimation of radiation doses.

Teramoto: You were sent to the ORNL in 1971 for a year for training on the SH survey. What work did you do there?

Okamoto: The late Mr. Hiroaki Yamada, an ABCC employee, and I went to the ORNL. I had never been to a foreign country before. Mr. Yamada and I rented an apartment together and also cooked ourselves.

Although ABCC's SH survey was very close to completion, we were sent to the ORNL for training on dose estimation, because dose estimation that took into account heavy structural shielding from concrete buildings, terrain, and air raid shelters, was difficult. My supervisor was Dr. Cheka (Dr. Joseph S. Cheka), who had been dispatched to ABCC in Hiroshima before. We had known each other before my training at the ORNL, and he provided detailed guidance to me. Mr. Yamada and I learned how to determine the relation among an A-bomb survivor, his/her heavy structural shielding, and the burst point, using the "globe" model developed by Dr. Cheka.

The ORNL had three large facilities called X-10, Y-12, and K-25, and X-10 had a HPRR (Health Physics Research Reactor), where 25 to 30 researchers worked. They pulled a bare reactor, usually housed underground, up to the ground level when conducting experiments. During the experiments, the staff had to stay in shielded rooms. The experiments and research at the ORNL led to the development of the T65D (Tentative 1965 Dosimetry System), which allowed the estimation of free-in-air doses. Details about the research done by Dr. Auxier, the leading figure in the development of T65D, and the relationship between the ORNL and ABCC are described in the book titled "ICHIBAN," compiled by the NHK Publishing Company. (*Translator's note: This book is available only in Japanese.*)

I wrote up a report as a summary of my one-year training on shielding estimation at the ORNL. In that report, I summarized the results of my study based on bare reactor experiments. Initially, neutron measurements were overdispersed, and I had to redo the tabulations three times. Finally, the tabulations were approved by Dr. Auxier (John A. Auxier) and Dr. Cheka, and I completed the report in English.

Similarly, Mr. Yamada wrote up his report on "black rain" exposure.

Teramoto: Did the training you received at the ORNL prove useful in your dosimetry work after you came back to ABCC?

Okamoto: We succeeded in the "globe" work for dose estimation, taking into account heavy structural shielding from concrete buildings, air-raid shelters, and terrain between each survivor and the burst point. The actual "globe" spherical coordinate projector is stored in the Hiroshima laboratory.

Teramoto: This will be my last question. People in Japan are concerned about radiation exposure resulting from the Fukushima nuclear power plant accident, and RERF collaborates with Fukushima Medical University in health surveys. Do you have any thoughts on the present situation?

Okamoto: I hear that response rates are low in the surveys in Fukushima. I do not know what methods are being used in the surveys, but given the large number of subjects, I assume that they are based on questionnaires, not personal interviews. In conducting surveys, I think that it would be better to interview each individual personally and establish mutual trust. It is also necessary that survey participants understand the future usefulness and importance

of survey results. Such surveys would require substantial human resources and serious work. The key is understanding the necessity to accumulate basic data.

-----

Mr. Okamoto's talk was followed by questions and answers, as follows:

Question: (1) Mr. Okamoto, you said that you had used aerial photos to determine locations of houses. How did you determine those locations on the U.S. Army Map?

(2) Shielding data were coded using nine house shielding parameters. When, by whom, and how was the "nine parameter" formula developed?

(3) The U.S. Army Map, stored as part of the SH record, has coordinate lines. Did you and your colleagues draw those lines?

Okamoto: (1) Because aerial photos have (radial) distortion due to lens (curvature), they do not completely conform with the Army Map. When there were discrepancies, we did some rough estimation to transcribe locations on the Army Map.

(2) I assume that it was Dr. Beebe (Gilbert W. Beebe) who established the "nine parameter" formula needed for shielding-related work when the T65D was developed. Those nine parameters include frontal shielding and slant penetration (distance from the survivor to the point of incidence on an outside wall along the line-of-sight). The nine parameters were introduced at quite a late stage of the SH survey. I am sure it was not an early stage.

(3) Yes, that is correct.

Tadaaki Watanabe (to supplement Mr. Okamoto's explanation): The distortion in the Army Map was addressed when the DS86 (Dosimetry System 1986) was developed, taking into account (radial) distortion due to lens (curvature) in the aerial photos, and some of the exposure locations on those maps were plotted on the accurate new city map.

Question: I understand that the SH survey was initiated nine years after the end of the war. If it had been initiated earlier, study subjects would have had better recollections. Was there any reason for the late initiation?

Okamoto: I think it was because nobody conceived of the idea of conducting such shielding surveys earlier. I assume that they knew the importance of information on the radiation doses citizens had been exposed to, but they were unable to conduct surveys earlier because they had not decided on the method to measure the doses.

Question: How many SH field investigators did the Nagasaki laboratory have?

Okamoto: About 10.

Question: You said that you and your colleagues had set out for the SH interview after you reviewed the MSQ data and other older survey data. How often did you come across survivors who told you stories different from the information recorded in such surveys?

Okamoto: When A-bomb survivors saw the aerial photos and told us different exposure locations and statuses, we corrected the previous data.

Question: I think the SH survey results are the most reliable. Am I right?

Okamoto: I am proud of the reliability and accuracy of the SH data.

Question: There are other surveys, such as the Radiation Questionnaire (RQ), the Migration Questionnaire (MQ), and the MSQ. When interviewing survivors who had responded to the RQ and/or MQ for the MSQ, did you ask questions already answered in the RQ or MQ?

Okamoto: I think Mr. Miyagawa (Toraji Miyagawa), then a MSQ field investigator, is better qualified to answer that question.

Miyagawa (Hiroaki Katayama responding on Miyagawa's behalf): Basically, questions were asked even if they had been answered in previous surveys.

[Note: Mr. Miyagawa gave us the supplementary information at a later date to the effect that, for a certain period after the MSQ survey was initiated, employees were instructed not to conduct MSQ surveys for survivors who had responded to the RQ and/or MQ or had died. After the health examination of the ME-200 cohort was initiated, field investigators asked participants MSQ questions when they came to ABCC for health examination.]

Question: In conducting the SH survey, when you found that individuals had changed their addresses or had died, did you try to find their new addresses or interview their close relatives?

Okamoto: When we were unable to interview SH survey subjects themselves, we interviewed individuals living with the subjects (concurrent A-bomb survivors), but we did not interview their neighbors or try to find new addresses.

Question: What were the specific SH survey method and the typical number of hours spent per individual?

Okamoto: To survivors who were exposed indoors, we asked supplementary questions, such as, "What were you doing at the time of the bombing?" If a person said she had been cooking, we were able to pinpoint her location as "kitchen" in her house.

The hours we spent differed from SH survey subject to subject. For some subjects, we spent three or four days. Drawings were completed in half a day, but it took time to collect information necessary to make drawings. Each visit lasted about one hour, and if one visit was not enough, we revisited them.

Question: The SH survey is a great work. Were questionnaire forms prepared before interviews? Or, were survey sheets filled in from scratch by trial and error?

Okamoto: Although there were trials and errors, we did not prepare questionnaire forms before our visits to survivors. We interviewed survivors and then wrote interview results in survey sheets.

Teramoto: Thank you very much for your interesting talk, Mr. Okamoto. I do hope you will take good care of yourself, and visit us again and give us guidance. [Applause]

icbt-3