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Mort Mendelsohn: A-Bomb Survivors

Joining the Scientific Council was my first official involvement with the Radiation Effects Research Foundation (RERF) in Hiroshima and Nagasaki. This was in 1985 while I was associate director for Biomedical and Environmental Research. RERF is the primary organization that monitors the health of A-bomb survivors. They carry out periodic mortality studies and examine a subset of survivors every two years for intermittent changes in blood chemistry and health.

I think RERF asked me to join its Scientific Council because of Livermore's long-standing interest and experience in biodosimetry. They may also have confused me with another Mendelsohn from Livermore, John Mendelsohn, who was in the weapons program at the time. Around 1980 he and Bill Loewe had a major effect on RERF when they used radiation spectra and transport equations to show that the neutron doses then in use for the survivors were too high. Eventually, this led to DS86, a complete reconstruction of the A-bomb dosimetry.

From 1985 to 1995, Biomed and RERF were in close collaboration because RERF needed our biodosimetric technologies and we needed an accessible, exposed population. To collaborate effectively, we had to learn how to communicate across distance and culture and, above all, how to trust each other.

The first method we transferred was the Glycophorin A assay, a flow-cytometric method to determine in humans the frequency of mutant red blood cells. We invented this assay in the 1980s and demonstrated its usefulness in monitoring human somatic genetic damage. The assay seemed well suited for RERF because only small samples of blood were required, but it was anyone's guess what the assay would show in the survivors who were then around 40 years post exposure. Ron Jensen brought the technique over to Japan and was pleased to find the Japanese already proficient in immunochemistry and flow cytometry. In 1987, Biomed and RERF jointly published the first evidence that the assay detected residual mutations left by exposures four decades earlier. No other somatic mutation assay was able to reach back this far in time. RERF continued over the next decade to enrich the assay and apply it to the survivors.