

New exhibit celebrates Weinberg's life and works

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On Oct. 27 an exhibit opened to the public on the life and accomplishments of Alvin Weinberg, director of Oak Ridge National Laboratory from 1955 to 1973, long-time Oak Ridge resident, author of nine books and 540 papers and co-inventor of the pressurized water reactor. PWRs propel the U.S. Navy's submarines and aircraft carriers and produce two-thirds of the world's carbon-free nuclear electricity. The exhibit is housed at the Children's Museum of Oak Ridge. Carolyn Krause presents a summary of the talks given following the ribbon cutting for the Weinberg Corner exhibit.

Beth Shea, executive director of the Children's Museum of Oak Ridge, opened the ceremony following the ribbon cutting at the exhibit. She said that when she learned about Alvin Weinberg, an internationally known scientist and national laboratory administrator who resided most of his life in Oak Ridge, and the collection of his papers at the museum, her response was "what a fabulous thing for a children's museum to have.

"I learned more about the collection, took a look, met with some people, and determined that it needed to be professionally archived, that it needed to be digitized, and then we needed to tell the story of Alvin Weinberg and his work."

Over a seven-year period, Weinberg's papers have been archived and digitized. And his story has been told through an online "Tribute to Alvin Weinberg" broadcast in 2021 over Zoom throughout the nation and is now being told through the new Weinberg Corner exhibit that opened to the public Oct. 27 in the museum's Discovery Lab.

In 2017, Shea said, Rhonda (Ronnie) Bogard – daughter of the museum's founding director, the late Selma Shapiro – "began leading an amazing team" that accomplished all the goals. "She's done all this with a smile," Shea noted.

As a scientist, science educator and the museum's director, Shea said she is planning to incorporate the Weinberg display into a larger STEM (science, technology, engineering, mathematics) exhibit. She added that she feels like she has been doing to Ronnie what her daughter, a cadet at the Air Force Academy, did to her when the two went hiking together in Colorado. Her daughter told her that the two were taking a 10-mile hike and then at the end revealed that they had hiked 15 miles. "She changed the goalposts but didn't tell me."

"When I started this project seven years ago," Bogard said, "what gave me my passion was that I knew it was so important to my mother." She added that the museum had "taken me in after she had passed away, brought me onto the board and really helped me with my grieving."

As she reviewed Weinberg's papers after digitizing them and prior to uploading them to the database, she said she was amazed about what she read.

"As a writer myself," she said, "I couldn't believe what he writes about, the way he interacts with people in his letters, his passion for humanity. He is the most transformative, most important consequential person that ever lived in Oak Ridge and has been part of our community. His writings show how he has impacted Oak Ridge, our country, and nations outside of the United States."

Bogard said that what was once a short-term project for her has become a lifelong project "because I'm completely devoted to getting the information about Weinberg out there, which is why we wanted to have this exhibit. Some visitors will just look at the information about Weinberg on the wall.

"Some people will look at the amazing videos and information in newspaper articles that are in the digital kiosk. I hope the exhibit will lead people really interested in Weinberg to the archive database, where they will likely have the same transformative experience as I had."

Also present at the Weinberg Corner ribbon cutting was Alvin Weinberg's son Richard, who lives in Durham, N.C., where he had worked at the University of North Carolina before retiring recently from his work in neuroscience. He told two stories about his famous father.

"Many of you know that Alvin was an excellent tennis player," he said. "In his later life he continued to play tennis at a high level and would get better compared to other people his age. I believe he won a state championship in his 60s" in a competition with men his age.

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Richard Weinberg noted that Alvin learned as a teenager that he had a heart murmur, and his doctor advised him to rest. Alvin, who had loved sports as a kid, gave up all athletic activities for two decades. Alvin's fear of exercise, Richard added, "was probably aggravated when his father died young of a heart attack."

Then in the 1950s, cardiologists advocated exercise even for people with "a questionable heart; Alvin, who took experts very seriously, started exercising and soon became fanatic about his tennis."

Richard said that, unlike his late brother David, he refused to take up tennis even though their father "thought it was the greatest thing in the world." But later in life Richard took up running for exercise.

Richard noted that his father "was a firm believer in progress, an idea that permeated American society in his era." Alvin was born in 1915 and survived diphtheria at age 5 (a disease that has since vanished due to the introduction of an effective vaccine). "In 1915," Richard noted, "out of every 1,000 American children born, 200 would be dead by the time they were 5. Today, out of 1,000 children, only 5 will die by the time they're 5."

Richard said that Alvin was "scarred by the Depression," which started in 1929. "You could see it by his interest in using coupons and taking advantage of Shoney's all-you-can-eat buffet."

Another sign of progress that Alvin witnessed was a gradual decline of antisemitism in America during his lifetimes. Alvin's cousin Leon Sternfeld, who was an excellent chemistry student and became an eminent physician, had tried to persuade his professor to write a letter of recommendation to help him get accepted in a graduate school chemistry program.

Leon told Richard that the professor said, "No, you're a great student, but you can't go to a chemistry graduate program because you're a Jew, and they won't hire you as a chemist."

Alvin explained to Richard that as a kid he spent summers with an uncle in Michigan early last century who explained that there were towns where it was unsafe for Jews to show up after dark.

"Things have changed so much," Richard said. "Alvin's view of progress was accurate."

A reactor concept that could represent progress in the generation of future carbon-free nuclear electricity is the molten salt reactor pioneered at ORNL and championed by Weinberg. The last speaker in the ceremony following the exhibit ribbon-cutting was Syd Ball, one of the few living researchers who worked on the design, operation and analysis of the Molten Salt Reactor Experiment (MSRE) at ORNL. This groundbreaking, low-pressure, high-temperature reactor experiment was the first nuclear reactor of its kind to operate as this part of the thorium fuel cycle, which was to create nuclear fuel. But the reactor project that the federal government prioritized for large amounts of funding was not the molten salt breeder reactor but the liquid metal fast breeder reactor, which later was canceled.

Ball said that he has been invited to France more than once to tell people there studying molten salt reactor technology about Weinberg and the MSRE and the history of the technology. He told his French audiences that 11 ORNL divisions were involved in making the new reactor technology work. "They were very impressed by the way that Alvin could put together a team from the laboratory" to develop and test a reactor concept still of interest today, Ball said.

He mentioned that one of Weinberg's goals was to prove that the thorium fuel cycle would work. Thorium is found all over the world as a waste product. When thorium-232 is bombarded with neutrons in a reactor, it eventually turns into uranium-233, a fissionable fuel not found in nature. ORNL proved in 1968 that the MSRE can operate on U-233 fuel. Weinberg said that U-233 would not make an effective bomb material for terrorists to steal "because it explodes too soon."

Ball talked about the 2017 French documentary "Thorium: The Far Side of Nuclear Power," directed by Myriam Tonelotto of France. The film is dedicated in memoriam to Alvin Weinberg (1915-2006), and Weinberg appears in the film as an animated character. Ball and Rick Weinberg are also interviewed in the film.

"Myriam said she had read just about every book Weinberg wrote," Ball said. "She isn't a physicist, but she is really good at promoting the thorium fuel cycle."

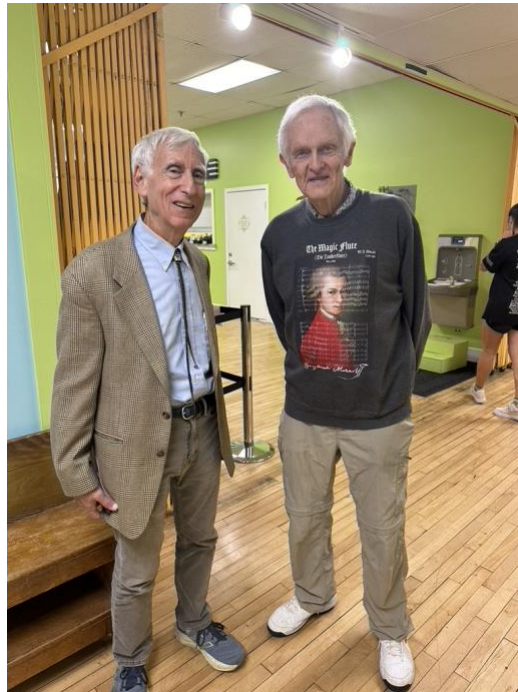
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He added that in his career of more than 60 years at ORNL, working at the MSRE "was the most fun work I ever did," Ball said.

He made a case for building more nuclear reactors for producing clean energy and turning seawater into clean drinking water and for replacing fossil fuel plants that emit pollution that kills millions of people each year as well as greenhouse gases that accelerate climate warming. Like Weinberg, Ball sees nuclear power as a key to human progress.

Thanks, Carolyn, for a most thorough review of a very impressive set of remarks at the ribbon cutting of the Alvin Weinberg exhibit at the Children's Museum of Oak Ridge. It is a welcome addition to the many unique exhibits in museums at Oak Ridge.



Richard Weinberg and Syd Ball enjoying discussing molten salt reactor technology

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Rhonda "Ronnie" Bogard, leader of the Weinberg Papers Project