

Inside the Helmet # 57

Continued: Dawn of modern groundwater development

We would like to thank Ms. Ellen Lovell, who through her intermediary Ms. Kumiko Iwasawa sent more than 100 year old documents from her grandfather Mr. Everett. The materials from Mr. Everett show that he was instrumental in the success of Nippon Hansen Joint Stock Company now known as Nissaku Co, Ltd. The documents have led to discussions about documenting this story either as a book or video. We would like to introduce this history and how it came to be.

First I would like to re-introduce the overview earlier in “Inside the Helmet”, “The Dawn of Modern Groundwater Development”.

Nissaku Co., Ltd. was founded in Marunouchi, Tokyo as a Nippon Hansen joint-stock company. The population of Japan in 1912 was estimated to be approximately 50 million people, and by the 1910s, arc lamps (city lights) had become widespread in Tokyo, and electricity was just beginning to be supplied. The water supply system founded in Tokyo (approximately 3 million people at that time) had expanded its originally planned capacity and completed all construction work in 1911 (Meiji 44). However, Tokyo's ever-increasing water demand was no longer adequate by the supply from Tamagawa Josui, which was the supplier at the time. This created the need to secure a large water source, and the use of groundwater was considered. As a result, the Nippon Hansen Joint Stock Company was established to drill for groundwater.

One year after its founding (1913) and unable to reach desired depths, the Nippon Hansen Joint Stock Company invited an engineer named A.W. Everett from California, U.S.A., to dig a mechanically dug deep well 160 meters deep in what is now Shimoochiai, Shinjuku Ward. This was the first successful mechanical boring in Japan, and by developing deep underground water, we were able to support the development of Tokyo City (Photo 1). At that time, manual excavation, such as Kanabobori (Iron rod) and Kazusabori (Bamboo rod), was the mainstream, and was limited to about 45 meters. We introduced Mr. Everett's mechanical drilling system and completed the 160m well shown in the photo, with an artesian flow rate of 55m³/day and a pump pumping rate of

5,450m³/day. Mr. Everett's rotary mechanical drilling method from California was cutting edge technology at the time and became the standard for rotary drilling techniques still in use today. After that, Nissaku carried out groundwater development across the country, providing a stable supply of groundwater throughout the country. In addition, by engaging in development support for developing countries, we continue to spread the impact started by American engineers both domestically and around the world.

Photo 1: Japan's first mechanical boring and a large amount of groundwater gushing out (@Shimoochiai, Shinjuku)



On Saturday, April 20, 2024, I visited Ms. Iwasawa, who introduced me to Mr. A.W. Everett's granddaughter, Ms. Ellen Lovell. Ms. Iwasawa owns Iwasawa Oriental Art in Los Gatos, providing Japanese art and culture in the Silicon Valley. Located approximately 50 minutes south of San Francisco by car, in the heart of Silicon Valley. In Silicon Valley, one of the most cutting edge areas, I felt a bond that had begun over 100 years ago. Ellen greeted me with a smile when I met her for the first time, and I felt a sense of familiarity with her that I couldn't believe.

While talking with Ms. Iwasawa and Ms. Ellen Lovell, we had already

received a record of the time when Mr. Everett was invited by the Japanese government, but there was also a record of Mr. Everett staying in Japan for several years and traveling all over Japan. They told me about what they were doing and that they were importing various things. In addition to the materials that Ellen donated to our company, she has many materials in English, and she said she would like to help decipher them. Therefore, as a representative of Nissaku, I made the following proposals:

- 1) Publish Mr. Everett's achievements (history of groundwater development using Mr. Everett's technology for Japan's first mechanically dug well) as a scientific and technical paper in an academic journal (Marui's role)
- 2) Ellen and Marui will decipher Everett's records (some diaries) and summarize his achievements for Japan.
- 3) Compile the science and technology articles, Mr. Everett's achievements, and the connection between California and Japan into a book with opinions of the local Japanese community.
- 4) If possible, make this into a video.

Nissaku owns the copyright to this film, so we should be able to contribute to future work around the world. Unlike well-known companies such as Toyota, Nisaku is not well-known in developed countries, but with the pride of being Japan's oldest underground water developer, we aim to enrich as many people as possible for developing countries. Therefore, we must continue to make progress.