

Anniversaries

Japanese paleobotanist 110 years ago



KONO YASUI (1880–1971) THE FIRST JAPANESE WOMAN TO RECEIVE A DOCTORAL DEGREE IN SCIENCE

Michiko Yajima (Japan)



Figure 1. Yasui Kono (1880–1971)
Source: Wikimedia commons.

This year has a special meaning for Japanese Earth Scientists, because the Great Kanto earthquake happened in 1923. At that time Kono Yasui (1880–1971) was doing research at the Tokyo Imperial University (now University of Tokyo), where little damage was done. For Yasui, 1923 was an important year as she had changed course to undertake studies in paleobotany on coal and lignite for her doctoral thesis and in 1927 she became the first woman in Japan to receive a Science Doctorate.

Japan had closed its doors to westerners until 1854. When they were allowed access they also brought many new social systems. Japanese women had also not been permitted to participate in the educational system until 1854, and this aspect of society changed slowly. At first Japanese women who wanted to study natural sciences had to become medical doctors and teachers. Then the Japanese government established two additional institutes called Women's Higher Normal School, in Tokyo and in Nara.

Kono Yasui, born in 1880 in Kagawa Prefecture, came to Tokyo at age 18 to study science at the Women's Higher Normal School (now the Ochanomizu University). After graduation in 1902, she worked as a teacher for 3 years at a middle school for girls. In 1905, in order to continue to study biology, she applied for and was accepted for the newly established government funded graduate research course at the Women's Higher Normal School, having been selected as its only science student.

She published her first scientific paper, "Weber's organ of carp fish" in the same year. She then focused her research on botany, particularly in cytology.

She completed the graduate course in 1907 and was appointed assistant professor at the Women's Higher Normal School.



Figure 2. Women's Higher Normal School in Tokyo.
Source: Ochanomizu University archives
<https://www.lib.ocha.ac.jp/archives/>

During the 19th Century Japan introduced western natural science courses and endeavoured to educate students in these subjects. Initially universities awarded students primary degrees as a first-level higher education qualification, however, they could not yet grant a doctorate to students as this course of study had not been established within the education system. Therefore, Japanese students had to go abroad to further their studies in order to obtain a doctoral degree from the universities in western countries. Japanese universities could give permission to such doctorate students to study at the foreign universities after they had graduated from a university in Japan.

Yasui also had to go abroad to do further studies in order to get her doctorate and she applied several times but without success as it was thought a woman could not achieve much in science. I found during my research that 1913 was an important year for Yasui as at last, 110 years ago, she was ordered by the Japanese Government to go to the USA and to Germany to study more on biology.

In 1914 she travelled to the USA, where she at first conducted cytological research at the University of Chicago, and began research on coal under the supervision of Professor Edward Charles Jeffrey (1866-1952) at Harvard University.

Here in order to provide some background to the path that Yasui's career will follow I will provide some details on coal studies in Japan. Jeffery might well have been aware that a good paper on the topic of Japanese coal had just recently been published by two eminent scholars: Stopes and Fujii (1910). Fujii Kenjiro (1866–1952) studied paleobotany and met Marie Stopes (1880–1958) in Germany. She was born in the UK and presented her dissertation in German and received a PhD in botany in 1904. Stopes came to Japan in 1907 where she explored coal mines in the region of Hokkaido for fossilized plants. These studies were published in 1910.

Unfortunately, Kono Yasui could not go to Germany as planned because of the outbreak of WWI. Upon returning to Japan, she found it difficult to secure research funds at the Women's Higher Normal School to continue her study of coal.

However, through the efforts of Professor Kenjiro Fujii of the Botany Course of Tokyo Imperial University and Professor Kenjiro Nakagawa, President of the Women's Higher Normal School, she was able to continue this research for 10 years at Tokyo Imperial University while working as an entrusted researcher of genetics in charge of supervising student experiments.

Fujii was a good mentor for Yasui and they continued to do research together for many years. Similarly, both Marie Stopes and Kono Yasui who worked with Kenjiro Fujii were born in the same year, studied similar coal fossils, both received doctoral degrees.



Figure 3. Kono Yasui with her mentor Kenjiro Fujii.
Source: Ochanomizu University archives
<https://www.lib.ocha.ac.jp/archives/>



Figure 4. Kono Yasui working on coal samples.

Source: Ochanomizu University archives. <https://www.lib.ocha.ac.jp/archives/>

Yasui collected coal samples from various localities around Japan by entering the deep shafts of coal mines using a basket. She conducted detailed examinations using completely new techniques and clarified the structural changes of coal plants depending on the degree of carbonization. This was regarded as outstanding research that could not be surpassed by others, and thus bore fruit as her doctorate thesis "Botanical Study on Coals Produced in Japan." She was awarded her degree by the University of Tokyo in 1927, where female students would not be accepted for another 20 years, becoming the first female Doctor of Science among universities in Japan.

She was a renowned academic, published more than 100 scientific articles and received several awards for her achievements including the Medal of Honor with Purple Ribbon, Order of the Precious Crown Third Class. Through her efforts the Ochanomizu University for Women was established in 1949 and a scholarship exists in her name. She died in 1971 aged 91.

Further Reading

Marie C. Stopes and Kenjiro Fujii, 1910. "Studies on the structure and affinities of Cretaceous plants," *Philosophical Transaction of the Royal Society of London*, Series B, 201 (1910), p. 1-90.

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