



## From the Annals of the World History

### Agnes Arber

(23 February 1879 – 22 March 1960)



**Agnes Robertson Arber** was a British plant anatomist and morphologist, a Biology philosopher, and a Botany historian. Though born in London, the 51 years of her life was spent in Cambridge. Anger Arber was recognized to be the first woman botanist and the third overall to have been elected as a Fellow of the Royal Society at the age of 67. Because of her contributions to botanical science, Arber received the Gold Medal of the Linnean Society of London by the age of 69 – the first woman to receive such accolade.

In terms of her scientific research, it was focused on the monocotyledon class of flowering plants. During the beginning of the 20th century, she contributed to the development of morphological research and studies in Botany. The later part of her life and works was concentrated on the Botany philosophy topic, specifically on the nature of biological research.

#### Personal Life and Education

On February 23, 1879, Agnes Arber was born in London. She had three other siblings (who also made big names for themselves), but is the first child of her parents, Henry Robertson and Agnes Lucy Turner. Her father, being an artist, was her first art instructor during her childhood, which she later took advantage from to exemplify her own scientific publications.

Arber began attending school by the age of eight at Northern London Collegiate School founded and run by one of the principal proponents for girls' learning and education, Frances Buss. Her fascination with Botany developed under the supervision of Miss Edith Aitken Arber, her science teacher. This fascination has led her to publish her first research piece in 1894 on their school magazine. During her schools' botany exams, she notched the top and won a scholarship. It was during this time that Arber got to meet Ethel Sargent, a plant morphologist who regularly gave presentations to the science club in their school. Sargent had caused a deep influence on Arber on research methods and interests when she became her mentor and colleague at the same time.

In 1909, Arber moved back to Cambridge after she married Edward Alexander Newall Arber, a paleobotanist. They were blessed with their only child who was born in 1913, Muriel Agnes Arber. Since both of them shared almost the same interests, the marriage was considered happy until 1918 when Newall Arber died after a period of ill health. Agnes Arber never got married again; instead, she drowned most of her time on her researches. At the back of her house was a small laboratory, which she used to work on until in 1940 that she shifted to philosophical study. She died at the age of 81 on March 22, 1960.

#### Early Career

Before Arber attended the University College in London, she spent the summer of 1897 collaborating with Ethel Sargent in her private laboratory. It was Sargent who gave her microtechniques used in preparing plant specimens during microscopic exams. While studying, Arber would return to work at least once at Sargent's laboratory. Between the years 1902 and 1903, Arber became Sargent's research assistant focusing work on seedling structures and it was during 1903 that she was able to publish her first paper about the anatomy of *Macrozamia heteromera*. While in the University, Arber also conducted studies on the gymnosperm class of plants, which made her produced various papers on their anatomy and morphology.

The study and philosophy the morphology of plant had then become the core focus of her later work. In the year 1909, Arber was able to earn a space through Newnham College in Balfour Laboratory for Women. Until the laboratory's closure in 1927, she spent her life in that laboratory continuing her studies and making new ones.

#### Contributions to Science

Arber studied the connection between the emergence and the development of Botany following the natural history with plants' evolution in terms of their descriptions, identifications, and classifications. It was then

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that she was able to publish her first book entitled "Herbals, their origin and evolution" just after she received the Research Fellowship award given by Newnham College in 1912.

With a lot of different researches and studies she had started and continued, Arber found a core topic to focus her research into – the morphology and anatomy of the monocot type and group of plants, which was inspired by her colleague and mentor Ethel Sargent.

It was then in 1920 that she became an author of two books and other 94 various publications. Arber also made a comparative research on aquatic plants through exploring their morphologic differences. This led her to publish her second book in 1920 – Water Plants: A Study of Aquatic Angiosperms. Five years later after she published her second book, she worked so hard to publish her third book called The Monocotyledons. It was a continuous study on the morphological methods of the analysis she presented in her book Water Plants.

After Balfour Laboratory's closure and after she was neglected by the space she used to have at her School, Arber's research and studies did not stop her to build her own small laboratory at her house's back room. There, she applied the lessons she learned on private research from her previous mentors.

After the publication of her third book, Arber concentrated her research to the Gramineae group of plants, especially bamboo, grasses, and cereals. This focus has resulted to the publication of her last book that concerned about plant morphology, The Gramineae. The book featured the life cycles, reproductive and embryologic, and vegetative cycles of bamboo, grasses, and cereals with the use of comparative anatomical scrutiny and exploration of these plants.

In January 1942, Arber was able to publish her final paper concerning original botanical research. Her entire succeeding publications were then about philosophical and historical topics when she found it difficult to maintain her small laboratory during the World War II. Despite stopping from laboratory works, she published more and more papers on her philosophical studies and worked with different people as influences until she published her final book in 1957, The Manifold and the One that concerned her wider views and philosophical questions about the "Unity" of all things.