

Charles S. Fletcher: A Key Man in Harvard Geology Lab

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Charles Spurgeon Fletcher (1896–1970) was a fourth-generation African Nova Scotian who developed technical expertise in the processing of polished ore samples and shared his knowledge widely through his work in the Laboratory of Mining Geology at Harvard University.

GROWING UP AMONG THE GYPSUM

Charles Fletcher was born in Windsor, Nova Scotia, a great-grandson of Isaac Fletcher, one of 2,000 Black American refugees who settled in Preston, Nova Scotia in 1815. Charles was named after the English Baptist preacher and abolitionist Charles Spurgeon, evidence of the importance of faith and social justice to his father and mother.

When Charles was a young boy, his family lived outside of Windsor in Newport Station, where the local school was not well supported and was frequently closed. At the age of 15, Charles was doing odd jobs and working alongside his father as a laborer in the Newport gypsum quarry. Charles' sister Mabel later recalled, "They would leave home about 5 o'clock in the morning. They would walk and come back by 12 o'clock.



An image from the report "Gypsum of Canada" published in 1913 by the Geological Survey of Canada shows workers at the Newport Plaster Mine in Avonport.

By that time they would have completed their work for the day" (States, 2002).

In the early 1900s, more than 350,000 tons of the gypsum were exported to New England through the Minas Basin and Bay of Fundy. In August 1913, a field excursion to the Atlantic Provinces following the International Geological Congress included a stop at the gypsum quarries in Newport Station. A photo of the Newport gypsum quarries, showing men loading "white rock" into a horse-drawn cart, may include Charles or his father and clearly shows the physical challenges involved in mining the gypsum. Charles' older brother Clement served in the Canadian Expeditionary Forces in World War I, and it seems Charles continued working in the gypsum quarry through the war, helping to support his family.

LYDIA AND A NEW LIFE IN BOSTON

In December 1920, Charles married Lydia Pleasant, the daughter of a Baptist preacher from Weymouth, Nova Scotia. Earlier that same year, Lydia was listed among the registrants of the first Congress of African Baptist United Association held in Halifax. This was an important event for the African Nova Scotian community, with presentations from prominent African Baptists about the social goals and objectives to support Black populations across Canada. Lydia's brother Wallace served in the Canadian Expedition Force, No. 2 Construction



Charles Fletcher sitting in the chair given to him by Harvard University upon retirement.

Battalion, the only Canadian battalion composed of Black soldiers to serve in World War I.

Shortly after Charles' father died in 1926, Charles and Lydia moved to Cambridge, Massachusetts, where Charles began working as a butler for Louis Graton, a professor of geology at Harvard University. After demonstrating interest in the geology lab, Charles began working as a preparator of ore samples at the Harvard Laboratory of Mining Geology in October 1928. For over thirty years, Charles worked in the lab and became internationally recognized for his knowledge in preparing polished thin sections of ore samples.

A KEY MAN AT HARVARD

Although Charles did not write about his accomplishments or details of his methods, a personal account was published in the afternoon edition of the *Boston Globe* on 29 November 1954. The article was one in a significant series written by Benjamin M. Dames, without which we would know very little

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about Charles' work and contributions (Dames, 1954).

In the article, Charles said, "I have always been mechanically inclined, and evidently my interest was showing because Prof. Graton offered to teach me the principles of grinding and polishing on a two-week trial basis. I am now entering my 27th year with the Department of Mining Geology."

Charles perfected the use of the Graton-Vanderwilt polishing machine, developed in the Graton laboratory, to mechanically grind and polish samples of ore for study under the microscope and in thin section. He carefully observed and modified the process, using innovative materials and techniques to improve the results of the polished samples.

Charles also reflected in the *Boston Globe* article about the dangers involved in the occupation. "The men and women engaged in grinding usually suffer painfully from irritation through nostrils caused by the fine dust-like particles that fly off the work and float in the air. Even though it may be diamond or gold

dust it loses its value when it settles in one's stomach," he joked. He admitted that these difficulties had been mitigated in recent years by using damp cloth mouthpiece air blasts to dispose of the dust.

The impact of Charles' work can be traced through publications that documented techniques of processing ore samples (Kennedy, 1945) and in acknowledgments in many publications that used his polished samples (Short, 1948; Teitel, 1948; Webb, 1955). In a summary of the methods developed in his lab, Dr. Louis Graton (1937) said that "the operation of polishing mechanically on metal laps is an art, not a fool-proof process. Its present state results from investigations ... and from the accumulated experience and steady interest of C. S. Fletcher."

NOVA SCOTIA AND THE ATOMIC AGE

After a visit home to Windsor in 1954, Charles became well known locally as an accomplished member of the Harvard laboratory. A publication by



Charles working to prepare an ore sample for polishing. Photo from *Boston Globe*, 29 November 1954.

Nova Scotia historian Florence Anslow (1962) suggested Charles was involved in a highly secret uranium project during World War II, and that Charles handled specimens from all over the world. This does seem possible, as James Conant, the president of Harvard University from 1933 to 1953, was also the Chair of the National Defense Committee overseeing the Manhattan Project.

Charles also used his expertise to prepare polished sections for researchers in his home province of Nova Scotia. Dr. Gregory Douglas completed his Ph.D. at Harvard in the mid-1920s before becoming a professor of geology at Dalhousie University in Halifax, Nova Scotia, from 1932 to 1957. Douglas tried to bring the Harvard techniques of ore polishing to Dalhousie but found students struggled to get suitable results. Douglas then arranged for all polished sections studied at Dalhousie to be prepared by Charles at Harvard, a testament to his skills. Charles said that even after polishing over 100,000 specimens, his technique was still improving (Milligan, 1995).

In the biographic article published in the *Boston Globe*, Charles noted, "I have now gotten over the thrill of entering my laboratory and seeing foreign professors, engineers, geologists, etc., examining the machines and polished specimens, seeking answers which I am delighted to share. I can recall discussing the grinding and polishing process to interested persons through interpreters."

Charles and Lydia became American citizens in 1935, but they never forgot their home in Nova Scotia. They maintained a summer property in Weymouth

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Charles Fletcher loading the Graton-Vanderwilt polishing machine at the Laboratory of Mining Geology at Harvard University. Photo from *Boston Globe*, 29 November 1954.

Falls that they visited frequently. Charles was an African Nova Scotian who did not have the privilege of completing his school education, but through his experience working in the gypsum quarries and his mechanical abilities, he established a successful career as a key man in the Laboratory of Mining Geology at Harvard University. Throughout their lives, Charles and Lydia were active and supportive members of their community; Lydia was recognized in newspapers as an active supporter of NAACP. In 1940, they adopted their niece, Cecilia, and raised her as their own daughter. Today, Cecilia's children continue to live in Charles and Lydia's Cambridge residence and visit the family vacation property in Weymouth, Nova Scotia. Charles' granddaughter, Brenda Stuckey, has been instrumental in the research and development of this profile.

Charles Fletcher was an innovative technologist, carefully observing ma-

terial features and customizing precision machinery to process material samples of interest to geologists. From regular summer visits with family and friends to Nova Scotia, Charles is remembered as a kind and thoughtful man. He is respected in the community as having attained great success in the Department of Mining Geology at Harvard University. Charles passed away in 1970, but his name lives on as a Rock Star.

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