

# THE LEGACY OF EDWARD ORTON JR.

By Eric Decaire



Edward Orton Jr. was born on October 8, 1863, in Chester, N.Y., the son of Dr. Edward and Mary Jennings Orton.<sup>1</sup> He spent his early years in Yellow Springs, Ohio, where his father served as the principal of the preparatory school of Antioch College, and later as president of Antioch College. In 1873, Orton Sr. became the president of the Ohio Agricultural and Mechanical College, which in 1878 would be renamed The Ohio State University.<sup>2</sup> It was likely in seeing his father's success and ascent into positions of respect and authority that young Orton Jr. would become inspired to accomplish his future achievements.

Orton Jr. attended The Ohio State University, earning the Engineer of Mines degree in 1884 with his graduation thesis titled "Plans and Specifications for a Fire-Brick Factory."<sup>2</sup> After graduating, Orton Jr. quickly set to work within his field becoming a chemist and superintendent of both iron and coal mines. While in this position he became recognized as the first regular manufacturer of ferrosilicon.

In 1888 Orton Jr. moved into the clay industry, where he would become the superintendent of an unprofitable and failing paving brick plant. Orton Jr., the meticulous man that he was, sought literature on what he could do to make his products better.<sup>3</sup> He, unfortunately, found none.

Later, when working on a report analyzing the clay-working industry in Ohio, Orton Jr. found there was sparse research and little practical knowledge amongst clay-workers on how to solve both ordinary and extraordinary issues in the field. Most problems were worked out either by common sense or by trial and error.<sup>4</sup> These findings would inspire him to establish the very first department of ceramics engineering at The Ohio State University.

## CERAMIC ENGINEERING AT THE OHIO STATE UNIVERSITY

The founding of the Department of Ceramic Engineering is a true testament to Orton Jr.'s devotion to furthering ceramic science. For the department to be established at The Ohio State University, Orton Jr. first had to draft and pass a bill through the General Assembly of Ohio. The bill that Orton Jr. drafted included specifications for the equipment that the department would need, what and how courses would be taught, as well as a request for five thousand dollars for

Orton Hall 1896,  
The Ohio State University



the first year and two thousand five hundred dollars annually for the following two years.<sup>4</sup> Orton Jr. independently sought support for his department from the Ohio Brick and Drain Tile Association along with the National Brick Manufacturers' Association. Upon understanding what Orton Jr. desired to create, both associations pledged their support and began lobbying for the bill.<sup>3</sup>

While the bill was incredibly thorough and had meaningful industrial support, it was met with sharp opposition. Many members of the Assembly regarded the bill as a novelty with some even ridiculing the idea. The opposition for the bill can best be exemplified by the moniker given to it, "The Mud Pie Bill."<sup>3</sup> Despite the initial hostility, the bill eventually passed on the twentieth of April 1884.

With the bill passed, it was time for the Trustees of The Ohio State University to pay attention to the new department. However, much like the General Assembly, the Trustees did not understand the scope and purpose of the department and therefore ignored the appropriations outlined in the bill.<sup>3</sup> To mitigate confusion and convince the Trustees to take action on the department, Orton Jr. created a complete curriculum outlining the purpose and scope of a ceramics engineering program for the University. His efforts proved successful, as he was voted Director of Ceramics by the Board, and plans were set in motion to get this groundbreaking & innovative new department up and running. While Orton Jr. spent much of the money the department was appropriated on machinery and materials, he desired to increase the department's impact by securing additional funds. Believing in his mission, the clay industry of America supplemented the appropriations of the state with donations almost equal to the amount of the original funding.<sup>3</sup>

During the department's first two years in action, nine students enrolled in the first year and six would enroll in the second year. From this starting success, more students would become drawn to the department, especially as new equipment was being donated by interested parties. As the department grew, Orton Jr. understood that he could

Ceramic engineering at  
The Ohio State University  
(present)



not teach and run the department alone. Therefore, the university elected William Lloyd Evans to the position of Assistant in Ceramics in 1896.<sup>3</sup> With the department up and running and strong leadership at the helm, Orton Jr. was able to shift his focus to what would become his biggest contribution to the field of ceramic engineering.

#### FOUNDING OF THE AMERICAN CERAMIC SOCIETY

In 1898 the annual convention for the National Brick Manufacturers' Association was held in the Monongahela House in Pittsburgh.<sup>5</sup> The topics during this convention were typically mundane, with little in the way of advancements for the craft. However, during this specific convention a revelation occurred. Elmer E. Gorton presented his paper, "Experimental Work, Wise and Otherwise," a technical paper that used the scientific method to prove the efficacy of a terracotta glaze, which he physically provided on a sample pieces for his peers to evaluate. This demonstration was the first of its kind at the convention, yet his peers gave little interest. Later that day Gorton would sit down with Samuel Geijsbeek, a fellow ceramic chemist, and discuss how a scientific approach to the industry was clearly the future. From this conversation, they gathered that a society focused on the scientific aspect of the industry was required. They presented this idea to another delegate of the convention and past teacher of both, one Edward Orton Jr.<sup>5</sup>

With the beginnings of a scientifically grounded ceramic society in the minds of these three members, it would be a winter storm that allowed this seedling of an idea to really blossom. Snowed in with nowhere to go, Orton Jr. and his companions canvassed the convention to find six more men to add to their membership. Upon the conclusion of the convention, the nine members met and decided to name Orton Jr. the provisional secretary and share contact information to add another 15 men to their ranks.<sup>5</sup> The members also agreed that the next meeting would occur in a year, just after the National Brick Manufacturers' Association convention in order to keep the Society connected with where it was founded. The first organizational meeting of the Society was held on February 6, 1889.



Factories like these were represented by brick men at the convention where The American Ceramic Society was first imagined.



### EDWARD ORTON JR. AS SECRETARY

At the first annual meeting of the American Ceramics Society Orton Jr. set the tone for how he wanted not only the Society, but also the industry to operate. In his keynote speech, Orton Jr. declared that the secretiveness which shrouded the ceramic industry should be done away with and that liberal and scientific discussions were clearly the way of the future.<sup>5</sup>

Later during the same meeting, the proposition of translating Dr. Herman Seger's, the then most progressive mind in the field, work from German to English was put on the docket for discussion. Being the visionary that he was, Orton Jr. pressed hard for translation and publication of Seger's works, offering himself and his students to help in the translation.<sup>6</sup> Orton Jr. had already demonstrated his commitment to disseminating Seger's work by translating works on his own, and with his students. He knew that Seger's framework had the power to revolutionize the ceramics industry which is why he also pressed for the translations to be published by volume instead of all at once so that the information could be disseminated more rapidly. The success of Orton Jr.'s argument would not only lead to such information becoming available to the clay industry in the United States, it would also put The American Ceramic Society at the forefront of the dissemination of ceramic science.

Upon the third Annual Meeting of The American Ceramic Society, questions were being raised as to the accessibility of the papers that the Society had been putting forth. This was due to the highly technical and scientific aspects of many of these papers, which some members and attendees could not understand. Orton Jr. was quick to lead the conversation and set his expectations for what the Society was to be by arguing that the Society was not conceived to better the current generation of clay workers, but instead to provide a knowledge base from which future clay workers will be able to learn and perfect their craft. He summed up the goals of the Society as lifting ceramics from a position of, "crude trade up to that of a refined and highly technically art."<sup>7</sup>

Many scientists and clay industry members must have seen the Society in the same light as Orton Jr. because membership grew quickly within

## About the author

Eric Decaire graduated in 2019 from The Ohio State University Department of Materials Science and Engineering. Decaire was a summer intern at Edward Orton Jr. Ceramic Foundation in 2019, where he helped design equipment for the ceramic industry.

## References

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- <sup>7</sup>Stover, Edward C. n.d. "The American Ceramic Society and its relations to the practical potter." *Transactions of the American Ceramic Society* 3: 164-70.
- <sup>8</sup>"Orton centennial celebration: 1896-1996." 1996. Columbus: Edward Orton Jr. Ceramic Foundation.

the first years of the organization. Starting from the original nine, the first meeting grew to a total of twenty-two members, the second meeting fifty-six with the seventh meeting in 1905 having a total of one hundred sixty-six members.<sup>5</sup>

The Society was growing and prospering. Orton Jr. had made the American Ceramic Society what it was by doing much of the administrative work and doing anything and everything else that he believed would help the organization. His work ethic was so exemplary that after his comprehensive report on the Society's status at the Annual Meeting in 1912, Ellis Lovejoy, then treasurer, admitted that his report would only be redundant after Orton Jr.'s thorough report.<sup>5</sup> For 20 years Orton Jr. was committed to the American Ceramic Society, doing his part to improve the organization in any way that he could. He even chose to work without any salary during his tenure.

In 1915 with World War I looming over America, Edward Orton Jr. enlisted in the military and was commissioned as a major in the Quartermaster Corps by 1917, stepping down from his position at the American Ceramic Society.<sup>5</sup> Orton Jr. served with distinction and honor. After discharge Orton Jr. was awarded the rank of Brigadier General in the Army Reserve Corp. After serving in the military Orton Jr. spent the next seven years as a philanthropist. After these seven years and much convincing Orton Jr. was finally convinced to return to the American Ceramic Society as president in 1930 at the age of 67.

## THE EDWARD ORTON JR. CERAMIC FOUNDATION

While at Ohio State, Orton opened and ran the Standard Pyrometric Cone company in 1896. Originally the company operated in Orton Hall, named after his father, from 1896-1904, then moved to London Hall from 1904-1929.<sup>2</sup> In 1929 the company relocated to the newly constructed Orton Memorial Laboratory near The Ohio State University campus. Upon the death of Edward Orton Jr. on February 10, 1932, the Edward Orton Jr. Ceramic Foundation was established. This organization was initially to use the sale of pyrometric cones to fund the research of "kiln-fired" ceramics as well as further the knowledge of ceramics. In 1967 property was purchased in Westerville, Ohio, for pyrometric cone manufacturing, and in 1981 the entire Orton Foundation relocated to the Westerville location, where it remains today.<sup>8</sup>