

ALCOA RESEARCH LABORATORY
(New Kensington Research Laboratory)
Aluminum Company of America
Freeport Road
New Kensington
Westmoreland County
Pennsylvania

HAER No. PA-295

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
P.O. Box 37127
Washington, D.C. 20013-7127

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HISTORIC AMERICAN ENGINEERING RECORD

ALCOA RESEARCH LABORATORY
(New Kensington Research Laboratory)

HAER No. PA-295

Location: Freeport Road, New Kensington, Westmoreland County, Pennsylvania

Date of Construction: 1929

Builder: Alcoa

Present Owner: Alcoa

Present Use: abandoned

Significance: As Alcoa sought to expand its line of manufactured products for use in homes and offices, it invested heavily in research and development for improving its aluminum production process as well as for finding new products for domestic consumption. The structure itself was a showcase for aluminum products, featuring numerous architectural embellishments and interior decorations made with aluminum, including hot water and heat pipes.

Project Information: In February, 1987, the Historic American Engineering Record (HAER) and the Historic American Buildings Survey (HABS) began a multi-year historical and architectural documentation project in southwestern Pennsylvania. Carried out in conjunction with America's Industrial Heritage Project (AIHP), HAER undertook a comprehensive inventory of Westmoreland County to identify the region's surviving historic engineering works and industrial resources.

Compiler: Gray Fitzsimons and Kenneth Rose, Editors

DESCRIPTION: The Alcoa Research Laboratory is in a park-like setting on Freeport Road overlooking New Kensington and the Allegheny River Valley. The building's design shows influences of neo-Classicism and the Art-Deco style and was executed by renowned Pittsburgh architect Henry Hornbostle. The two-story building is 275' long with 108' wings at each end and a total of 56,000 square feet of floor space. There are a number of one-, two-, and three-story wings adjoining its rear (east) facade. The main (west) facade features twenty-one bays, each of which is separated by inscribed decorative limestone pilasters. The multi-light windows of the first and second floors are separated by a band of ornate aluminum panels. An intricately detailed aluminum railing serves as a parapet wall and extends around the flat roof of the main building. The entrance contains four bays that project beyond the main facade. A stone stairway leads to the entrance, which features ornate aluminum gates; the double doors leading to the interior entrance hall contain panels with floral and shamrock motifs of hand-wrought aluminum. The entrance hall has marble floors. Aluminum stair railings, light fixtures, baseboards, heating grates, door jambs and knobs are found in abundance throughout the main building. There are also crafted aluminum chairs and desks, and in the basement there are three ornate aluminum bookcases reportedly made for the Hunt family. An aluminum elevator in the center of the building was used for carrying heavy equipment and supplies to the upper floors where the laboratories were located. The rear wings to the main building contain buff-brick walls, structural steel frames, and multi-light pivoting windows. A 135' tall brick chimney rises above one of the wings and the main building.

HISTORY: Aluminum is one of the most plentiful elements in the world, forming about eight percent of the earth's crust. Aluminum occurs in nature in combination with other minerals, and although a process was developed to separate aluminum from other minerals in the late 1820s, this separation process was too expensive to be commercially feasible. Charles Martin Hall discovered an electrolytic process of making aluminum that was commercially applicable in 1886. Hall's process for making aluminum was a dual method in which a powder called "alumina" (aluminum oxide) was produced from bauxite ore by a chemical process in a digester. The alumina was then transformed into aluminum by a smelting process in a flux of cryolite, activated by an electric current in "pot lines" of steel cells. Paul Heroult, a French chemist, simultaneously discovered a similar process in a crude lab in a tannery in Gentilly near Paris and received an American patent in 1886. A heated dispute between Hall and Hercoult ensued over patent ownership during this period.

In 1888 Hall convinced a group of Pittsburgh capitalists headed by Captain Alfred Hunt to invest in his new aluminum-producing process. Hunt furnished \$20,000 capital and an experimental laboratory on Smallman Street in Pittsburgh. Andrew Mellon and his brother Richard K. Mellon, Pittsburgh bankers, provided venture capital to Hall's new Pittsburgh Reduction Company. On Thanksgiving Day 1888, Hall and his assistant Arthur Vining Davis turned out the first ingot of aluminum and a new industry was born. The Smallman Street experimental plant had increased its production from fifty pounds to 500 pounds of aluminum per day by the time the firm constructed a new facility along the Allegheny River in 1891 (see entry below).

The Pittsburgh Reduction Company name was changed to Aluminum Company of America (Alcoa) in 1907, and Arthur Vining Davis was elected chairman of the board. Alcoa had expanded its New Kensington Works to about 75 acres by the 1910s. It contained a manufacturing floor space of over a million square feet and employed over 3,000 workers. As the sole producer of primary aluminum in

pig form on the North American continent during World War I, Alcoa secured its place as one of the nation's major industrial concerns.

After the war the company sought to expand its line of manufactured products for use in homes and offices. Alcoa invested heavily in research and development for improving its production of aluminum, as well as finding new products for domestic consumption. In 1929 the small research laboratory at the New Kensington Works was removed to the new laboratory building on the outskirts of the city. Housed in this building were the various divisions: Metallurgical, Physical Testing, Analytical Chemistry, Chemical Development, Patent, Library, and Administrative. As a showcase for aluminum products the laboratory building featured numerous architectural embellishments and interior decorations made with aluminum. Even the pipes for hot water and heat were of aluminum. Alcoa operated this facility through the early 1980s when it moved all of its laboratory and research personnel to its metals and minerals research campus in nearby Lower Burrell. The New Kensington laboratory is currently abandoned.

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