Form No. 10-300 (Rev. 10-74)

THEME: Americans at Work
SUBTHEME: Science and Invention

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

FOR NPS USE ONLY
RECEIVED
DATE ENTERED

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC
Edward G. Acheson House

AND/OR COMMON
908 Main Street

2 LOCATION

STREET & NUMBER
908 Main Street — NOT FOR PUBLICATION

CITY, TOWN
Monongahela — VICINITY OF

CONGRESSIONAL DISTRICT
22

STATE	CODE	COUNTY	CODE
Pennsylvania	42	Washington	125

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE	
__DISTRICT	__PUBLIC	X OCCUPIED	__AGRICULTURE	__MUSEUM
X BUILDING(S)	X PRIVATE	__UNOCCUPIED	__COMMERCIAL	__PARK
__STRUCTURE	__BOTH	__WORK IN PROGRESS	__EDUCATIONAL	X PRIVATE RESIDENCE
__SITE	**PUBLIC ACQUISITION**	**ACCESSIBLE**	__ENTERTAINMENT	__RELIGIOUS
__OBJECT	__IN PROCESS	__YES: RESTRICTED	__GOVERNMENT	__SCIENTIFIC
	__BEING CONSIDERED	__YES: UNRESTRICTED	__INDUSTRIAL	__TRANSPORTATION
		X NO	__MILITARY	__OTHER

4 OWNER OF PROPERTY

NAME
John Skinkis Jr.

STREET & NUMBER
908 Main Street

CITY, TOWN
Monongahela — VICINITY OF

STATE
Pennsylvania

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.
Registry of Deeds

STREET & NUMBER
Washington County Courthouse

CITY, TOWN
Washington

STATE
Pennsylvania

6 REPRESENTATION IN EXISTING SURVEYS

TITLE
None

DATE

__FEDERAL __STATE __COUNTY __LOCAL

DEPOSITORY FOR SURVEY RECORDS

CITY, TOWN

STATE

41

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
X EXCELLENT	__DETERIORATED	X UNALTERED	XX ORIGINAL SITE
__GOOD	__RUINS	__ALTERED	__MOVED DATE_____
__FAIR	__UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

The Edward G. Acheson House at 908 Main Street, Monongahela, Pennsylvania, is a detached 2-1/2 story brick building. The date of its construction, the architect, and the builder are unknown. It was probably built in the 1870s. Architecturally the house is a venacular example of domestic architecture of the period and is of no architectural significance. Simply and solidly built the building is an asymmetrically grouped house. The front elevation is characterized by a full double bay and a single bay entrance with double door. The north elevation has a central side bay with a double story projection. A two story centrally located service wing is attached to the main block in the rear. The interior side hall floor plan is original. In Acheson's time the first floor consisted of a living room, a dining room, study, and a kitchen in the service wing. The second floor contained four bedrooms and a bath and there was a small storage area in the attic space. The integrity of the building is whole and there are no intrusions. With the exception of removing a frame wash house or summer kitchen that was attached to the service wing, the building has undergone no exterior alterations. On the inside a modern kitchen has been built in what was the study and a laundry room has been installed in the previous kitchen in the service wing. No other changes have taken place.

From 1890 to 1895, 908 Main Street was Acheson's home when he lived in Monongahela. Acheson invented carborundum while living in the town. His autobiography implies that the invention took place at 908 Main Street. Local hearsay also contends that the actual invention took place in the house. The present owner relates that, when he purchased the home in 1956, an elderly long time resident of Monongahela came to the house and suggested that a plaque be placed on the building indicating that carborundum was invented there. He reported that the invention was made in the summer kitchen which Acheson had converted into a small laboratory.

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
__PREHISTORIC	__ARCHEOLOGY-PREHISTORIC	__COMMUNITY PLANNING	__LANDSCAPE ARCHITECTURE	__RELIGION
__1400-1499	__ARCHEOLOGY-HISTORIC	__CONSERVATION	__LAW	__SCIENCE
__1500-1599	__AGRICULTURE	__ECONOMICS	__LITERATURE	__SCULPTURE
__1600-1699	__ARCHITECTURE	__EDUCATION	__MILITARY	__SOCIAL/HUMANITARIAN
__1700-1799	__ART	__ENGINEERING	__MUSIC	__THEATER
X 1800-1899	__COMMERCE	__EXPLORATION/SETTLEMENT	__PHILOSOPHY	__TRANSPORTATION
__1900-	__COMMUNICATIONS	__INDUSTRY	__POLITICS/GOVERNMENT	__OTHER (SPECIFY)
		X INVENTION		

SPECIFIC DATES 1890-1895 BUILDER/ARCHITECT unknown

STATEMENT OF SIGNIFICANCE

The last quarter of the 19th century and the beginning of this century are often viewed with nostalgia as a period that witnessed the full flowering of an heroic age of American invention. The lone inventor, self-educated and working alone in an attic or garage, was the star of the period. Men like Edison, Bell, and the Wright brothers, the descendents of Evans, Fulton, and Moorse, became symbols of the American creative genius. Their famous inventions were testimony to the national belief in progress and the ability of technology to improve mankind's condition. Although less famous than many of his contemporaries, Edward Goodrich Acheson was a member of this group. When in 1891, probably in a summer kitchen attached to a simple house in Monongahela, Pennsylvania, Acheson invented a substance he called carborundum, he assured both his fortune and a place in the history of invention in America.

Life

Edward Goodrich Acheson was born March 9, 1856, in Washington, Pennsylvania, a quiet small town in the southwestern corner of the State. When he was five the family moved to Gosford, Pennsylvania, where his father had become manager of a blast furnace. Acheson's formal education was meager. After attending a primary school run by a local farmer, he spent a year at a boarding school and then transferred to a private academy for his secondary education. In 1872 before he had completed high school his father, fearing economic hard times, called him home. Acheson's education ended when he was 17.

Back in Gosford Acheson's first job was as a timekeeper in a steel mill. Although only 18 he had already decided to become an inventor and in 1873 he patented his first invention, a rock boring machine for use in the coal mines. From 1873 to 1880 Acheson worked at a variety of jobs in western Pennsylvania, such as surveyor and construction boss, but found none of them satisfactory. According to Acheson himself, 1880 was a decisive year. Stimulated by articles he read concerning the latest developments in electricity in the Scientific American, a periodical that communicated popular information concerning science and invention, Acheson decided to move to New York. In New York he had the good fortune to gain the attention of Thomas Edison, who gave him a job as a draftsman at Edison's

9 MAJOR BIBLIOGRAPHICAL REFERENCES

Edward G. Acheson, A Pathfinder, (Port Huron, 1965).

Byron A. Soule, "Edward Goodrich Acheson," Dictionary of American Biography, 21, (New York, 1944).

Raymond Szymanowitz, Edward Goodrich Acheson, Inventor, Scientist, Industrialist, (New York, 1971).

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY less than one acre

UTM REFERENCES

	ZONE	EASTING	NORTHING
A	17	590795	4459875
B			
C			
D			

VERBAL BOUNDARY DESCRIPTION

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

NAME / TITLE

James Sheire, Historian

ORGANIZATION — DATE

National Park Service - Historic Sites Survey — 2/3/76

STREET & NUMBER — TELEPHONE

1100 L Street NW.

CITY OR TOWN — STATE

Washington — D.C.

12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL X STATE ____ LOCAL ____

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

FEDERAL REPRESENTATIVE SIGNATURE

TITLE — DATE

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DATE

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION

ATTEST: DATE

KEEPER OF THE NATIONAL REGISTER

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laboratory in Menlo Park. At Menlo Park Acheson quickly demonstrated his mechanical talents. In 1881 Edison sent him to Paris to help set up a lamp exhibition at the Paris Exposition of that year. Acheson then spent the next two years in various European cities installing electric plants. By the time he returned to the United States he was thoroughly familiar with electric technology.

Although Edison was pleased with Acheson's work and insinuated that he would go far, Acheson decided to start his own laboratory. His efforts in this direction were unsuccessful and in 1885 he moved back to Pennsylvania to work on an idea for using natural gas to reduce iron ore. Although this venture was a failure, he was able to sell the rights to a previous patent to the Standard Underground Cable Company. As part of the sale Acheson secured a position with the company. Five years later in 1890 he quit this job in order to help build an electric system for the small town of Monogahela, Pennsylvania. Income was not Acheson's only interest. He hoped to use the plant's excess daytime generating capacity to conduct experiments.

Although Acheson lived only five years in Monongahela it was the most important period of his life. In March 1891 he conducted the experiments that led to his invention of carborundum. Four years later, after he had secured the necessary capital backing and had devised plans for the large scale production of carborundum, Acheson moved to Niagra Falls, New York. The new large electric generating plant located there could supply the large quantities of electricity required for the manufacture of carborundum.

Acheson lived in the Niagra Falls area from approximately 1896 to 1915. While there he built a large house across the river in Canada. He named the estate Graphillia, after one of his inventions. During this period he continued to experiment with electrothermal processes. His most successful invention during these years was the discovery of an almost pure form of graphite. From the artificial graphite Acheson developed a range of new products such as electrodes, lubricating fluids, and inks.

In 1916 he moved to New York City where he spent the remaining years of his life managing the affairs of the Acheson Company, a family corporation he had formed in 1903 to unite his various business interests. Internationally recognized as an important inventor, Acheson received many awards and honors, the most prestigious being the American Academy of Arts and Sciences' Rumford Premium (1908) and the Perkins Medal of the American Chemical Society (1910). Acheson lived to see his 75th birthday, dying July 7, 1931, at the home of a daughter in New York.

Work

Two types of inventors have characterized the history of invention in the United States. The first is the inventor-scientist, the man who in the course of his basic science research finds practical application for his discovery. Ernest Lawrence, essentially a basic science physicist who invented the cyclotron, is an example of this type of inventor.

The second type is the inventor-engineer, the person whose usually limited interest in nature's mysteries is secondary to his desire to discover new ways of manipulating physical and biological reality. John W. Hyatt, who invented celluloid while searching for a substitute for the ivory billard ball, is an example of this type of inventor. Edward Goodrich Acheson is another. He never took a single course in chemistry or physics and probably knew nothing of the chemical and physical principles involved in his inventions. He was, however, familiar with the experimental process, possessed the knowledge of an engineer in building the electrical apparatus used in his experiments, and, equally important, knew what he wanted to invent.

Acheson's most famous invention is carborundum, the thoroughly unscientific name he gave silicon carbide. He arrived at this discovery in a time honored fashion, i.e. by accident. Having failed to make significant discoveries in the electrical field or to succeed in employing natural gas in blast furnaces, Acheson decided to try his luck in another direction. It is unclear why Acheson began his carborundum experiments. Either someone told him that industry could use a good abrasive or he hoped to invent artifical diamonds. In any case he recognized a market place need for a cheap substance harder than anything previously known. Acheson's conception was to mix clay and powdered coke and then fuse the mixture by means of an electric current. Upon examining the results he noticed some shiny particles. Removing them from the mixture he discovered that they would scratch glass. Acheson had stumbled on the hardest artificial substance that had ever been invented up to that time, silicon carbide. Extensively used throughout industry as an abrasive, carborundum remained for nearly 50 years the hardest known artificial substance and is still widely used today.

Having achieved success and fortune with his first major invention, Acheson continued his experiments with carborundum. He decided to investigate what the effects of high temperatures would be on silicon carbide. Employing the thermochemical process he had pioneered in his carborundum experiments, Acheson heated the carborundum. When the silicon carbide reached approximately 7,500

degrees F, the silicon vaporized from the carbon. Left behind was almost pure graphite. Acheson then discovered ways in which the graphite could be used. The uses he devised ranged from graphite electrodes to metallic silicon and graphite lubricants. In all Acheson held nearly 70 patents centering on his carborundum and graphite discoveries and the process he employed.

Acheson's inventions were a large commercial success. According to Byron A. Soule, "He was instrumental in starting and successfully establishing at least five industrial corporations more or less closely dependent upon thermochemical processes."[1] The industrial success of Acheson's inventions corresponded to his original intention to create products and processes that would be technological improvements on past experience. The basic science implications of his inventions, such as the chemical principles involved in thermochemistry, were not his concern. Acheson was one of the last heroic inventors. When he died in 1931 the time was gone when a young man with no disciplined education in science or engineering could set himself up in a summer kitchen converted to a laboratory and with a plumber's pot, some clay, some powdered coke, and an electric current invent an abrasive that would start an industry.

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[1]Byron A. Soule, "Edward Goodrich Acheson," Dictionary of American Biography, 21, (New York, 1944), p. 5.