Theme: Americans at Work
Subtheme: Science and Invention

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

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
Herbert H. Dow House

AND/OR COMMON
The Dow House

2 LOCATION

STREET & NUMBER
1038 West Main Street — NOT FOR PUBLICATION

CITY, TOWN
Midland — VICINITY OF

CONGRESSIONAL DISTRICT
10th

STATE	CODE	COUNTY	CODE
Michigan	26	Midland	111

3 CLASSIFICATION

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

4 OWNER OF PROPERTY

NAME
Herbert H. and Grace A. Dow Foundation

STREET & NUMBER
1038 West Main Street

CITY, TOWN
Midland — VICINITY OF

STATE
Michigan

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.
Register of Deeds

STREET & NUMBER
Midland County Courthouse

CITY, TOWN
Midland

STATE
Michigan

6 REPRESENTATION IN EXISTING SURVEYS

TITLE
None

DATE

__FEDERAL __STATE __COUNTY __LOCAL

DEPOSITORY FOR SURVEY RECORDS

CITY, TOWN

STATE

49

7 DESCRIPTION

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

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

The Herbert H. Dow House is located at 1038 West Main Street in Midland, Michigan. Built by Dow in 1899 the house is a 2-1/2 story frame building with an attached car port that is formed by an extension of the front porch roof. The architect and builder are at the present time unknown (this information is being supplied). Architecturally the house is an example of venacular domestic architecture of the period and, although it has some traces of colonial revival, it follows no immediately recognizable architectural style. There is no indication that the building is of architectural significance. The main feature of the house is its eclectic nature. It is irregular in shape and is characterized by several bays and extensions, both salt box and hip type roofs, irregular grouping of the windows, and little exterior ornamentation or detail. Perhaps the most unusual feature is a two story box shaped recreation room and study which is attached diagonally to a corner of the main block by an entrance.

Dow built his home in Midland in 1899 and lived there throughout his life. According to his principal biographers, Dow himself guided its design and construction and, "If there was a detail of design or execution that had escaped his alert eye and attention, it is hard to imagine what that detail could be."[1] To satisfy his interest in horticulture Dow planned and executed a 40 acre carefully landscaped combination garden, botanical garden, and arboretum surrounding the home. Today a trained horticulturist and his staff care for the gardens, which are open to the public.

The integrity of both the exterior and the interior of the Dow House are whole. The house has literally undergone no change since Dow's death in 1930. The interior, with its standard center hall plan and also servants' quarters in the rear, is exactly as in the Dow period. When Dow's widow died the house was shut up. Although in many respects the house is a house museum completely furnished as when the Dow's lived there, it is not open to the public.

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[1]Murray Campbell and Harrison Hatton, Herbert H. Dow, Pioneer in Creative Chemistry, (New York, 1951), p. 48.

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW				
__PREHISTORIC	__ARCHEOLOGY-PREHISTORIC	__COMMUNITY PLANNING	__LANDSCAPE ARCHITECTURE	__RELIGION	
__1400-1499	__ARCHEOLOGY-HISTORIC	__CONSERVATION	__LAW	X SCIENCE	
__1500-1599	__AGRICULTURE	__ECONOMICS	__LITERATURE	__SCULPTURE	
__1600-1699	__ARCHITECTURE	__EDUCATION	__MILITARY	__SOCIAL/HUMANITARIAN	
__1700-1799	__ART	__ENGINEERING	__MUSIC	__THEATER	
__1800-1899	__COMMERCE	__EXPLORATION/SETTLEMENT	__PHILOSOPHY	__TRANSPORTATION	
XX 1900-	__COMMUNICATIONS	__INDUSTRY	__POLITICS/GOVERNMENT	__OTHER (SPECIFY)	
		__INVENTION			

SPECIFIC DATES 1899-1930 BUILDER/ARCHITECT unknown

STATEMENT OF SIGNIFICANCE

There have been instances in the history of science in America when a scientific breakthrough or discovery has led to the creation of whole new industries. John W. Hyatt and celluloid, Leo Baekeland and his bakelite, Edward G. Acheson with carborundum, Wallace Carothers and nylon, and C. M. Hall and aluminium are examples of men and their discoveries leading to new industrial endeavors. Herbert H. Dow, chemist and father of the Dow Chemical Company, is a member of this elite group. His approximately 1890 discovery of a highly efficient way to separate bromine from raw brine led to the creation of a company which today is one of the giants of the chemical industry.

Life

Herbert H. Dow was born February 26, 1866, in Belleville, Ontario. Soon after his birth the family moved to Derby, Connecticut, and then later to Cleveland, Ohio, where Dow's father found employment as a master mechanic in a steam shovel works. Dow received his primary and secondary education in local schools and in 1884 entered the Case School of Applied Science. Although Dow intended to study architecture upon entering Case, his interest soon switched to chemistry. He graduated with a bachelor of science degree in 1888. Dow's undergraduate years at Case were decisive for his later career. While at Case his attention was drawn to brine and he studied the substance with care. In his senior year his knowledge of brine had become so extensive that his teachers asked him to present a paper to a meeting of the American Association for the Advancement of Science. In order to collect data for the paper, Dow examined different brines found in Ohio, Michigan, Pennsylvania, and West Virginia. By the time he graduated from Case Dow had become an expert on brines and was already thinking of ways in which they could be exploited.

When Dow left Case he was 22 years old. Instead of going on to graudate school and higher degrees, as could have been expected from a student of his talents, he elected instead to pursue his ideas for exploiting brine and especially his conception of a way in which bromine could be separated from brine. In order to support himself he took a teaching position at the Homeopathic Hospital College of Cleveland as professor of chemistry and technology. In his spare time he worked on his bromine separation idea. By 1890 his method of separating bromine was sufficiently advanced to allow him to give up teaching and devote his full attention and energies to building the necessary plant and equipment to produce bromine.

9 MAJOR BIBLIOGRAPHICAL REFERENCES

Murray Campbell and Harrison Hatton, Herbert H. Dow Pioneer in Creative Chemistry, (New York, 1951).

"Herbert H. Dow," Dictionary of American Biography, 21, (New York, 1944).

Edward Farber, Great Chemists, (New York, 1961). Don Whitehead, The Dow Story, (New York, 1968)

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY 40 acres

UTM REFERENCES

	ZONE	EASTING	NORTHING
A			
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 — 1/29/76

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

54

Dow's choice for the location of a plant was Midland, Michigan. His 1890 move to the small community with its brine deposits began an association with the community which lasted throughout his life. By 1897 his discoveries associated with brine had reached the point that large scale exploitation became possible and the Dow Chemical Company was formed. Thanks to Dow's skills in chemistry, and especially his knowledge of brine, the company prospered. "The growth of the Dow Chemical Company," Dow's Dictionary of American Biography biographer points out, "is marked by the development one after another of chemical compounds and salts that were produced as a result of Dow's determination to utilize all values to be found in the brines with which he worked." [1]

In addition to his interest in the chemistry of brines, Dow also turned his attention to horticulture. He layed out extensive gardens around his Midland home and worked extensively in them. Upon his death the gardens were opened to the public and today they are one of Midland's finest parks. As his wealth grew Dow became a leading member of the Midland community. He served on numerous public boards and for years served as Midland's superintendent of parks, often supporting them out his own pocket. The Midland community also benefited from the numerous philanthropic activities of Dow and his heirs. He was deeply devoted to his family and was the father of seven children, among them Alden Dow, a nationally recognized architect and one of the leading interpreters of Frank Lloyd Wright's "Prairie School" of architecture. Dow received numerous awards and honors, among them the Society of Chemistry's Perkins Medal (1930), and belonged to all the scientific organizations. He died October 15, 1930, in Rochester, Minnesota, following an operation at the Mayo Clinic.

Work

The dividing line between the scientific activities of the chemist and the chemical engineer is often hard to distinguish. Broadly defined the chemist is concerned with the basic science nature of substances and how they are converted into other substances. The chemical engineer's main interest centers on the manipulation of substances and chemical processes for practical purposes such as producing chemical products. Herbert H. Dow was both a chemist and a chemical engineer. At the beginning of his career Dow functioned as a chemist. His study of brine and especially of the chemical nature of the substances

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[1] Harrison E. Howe, "Herbert Henry Dow," Dictionary of American Biography, 21, (New York, 1944), p. 260.

contained in various brines were the concerns of the basic science chemist. On the other hand his invention and development of a process whereby bromine could be separated from brine marked him as a pioneer chemical engineer.

In the history of chemistry Dow is best remembered for the process he invented for separating bromine from brine. In Midland, Michigan, Dow in the late 1880's found brine deposits that contained large concentrations of bromine and relatively few other substances. His problem was to find a process by means of which the bromine could be separated from the brine and the other substances. To accomplish this end he invented a process in which air was blown through brine that had been electrolyzed. According to William Haynes, himself a chemist, the revolutionary nature of the process was that an electric current and not a chemical means was used to obtain the brine. Dow's discovery was the first electrochemical process ever used in the United States and marked the beginning of wide scale use of electricity in chemical manufacturing.[2]

The study of brines and the substances that could be obtained from them remained Dow's life long interest. He took out over 65 patents covering a wide range of products and substances. Among his more notable achievements were an electrochemical process for the production of chlorine and the development of a process for obtaining Epsom salts. This process in turn led to the development of a system of electrometric chemical control that was the first of its type in the United States. The system eventually allowed the Dow Chemical Company to automatically handle sea water thus assuring a literally inexhaustible source of brine. Under Dow's leadership and through his contributions as both a chemist and a chemical engineer the Dow Chemical Company grew to become one of the Nation's most important chemical companies.

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[2]William Haynes, "Herbert H. Dow," Great Chemists, edited by Eduard Farber (New York, 1961), p. 1225.