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 May 11, 1976
DATE ENTERED

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

1 NAME

HISTORIC: Robert A. Millikan House

AND/OR COMMON: 5605 Woodlawn Avenue

2 LOCATION

STREET & NUMBER: 5605 Woodlawn Avenue

__NOT FOR PUBLICATION

CITY, TOWN: Chicago __ VICINITY OF

CONGRESSIONAL DISTRICT: 1st

STATE: Illinois CODE: 17 COUNTY: Cook CODE: 031

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: Wilson E. McDermut

STREET & NUMBER: 5605 Woodlawn Avenue

CITY, TOWN: Chicago __ VICINITY OF

STATE: Illinois 60637

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.: Cook County Recorders Office

STREET & NUMBER: 5801 Ellis Avenue

CITY, TOWN: Chicago

STATE: Illinois

6 REPRESENTATION IN EXISTING SURVEYS

TITLE: None

DATE

__FEDERAL __STATE __COUNTY __LOCAL

DEPOSITORY FOR SURVEY RECORDS

CITY, TOWN

STATE

7 DESCRIPTION

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

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

At 5605 Woodlawn Avenue is a three story brick building. It is one of three houses in a row designed by the Chicago architectural firm of Tallmadge and Watson and built in approximately 1906 or 1907. Thomas F. Tallmadge (1876-1940) worked from 1898 to 1905 in the office of D. H. Burnham and Company. In 1905 he established an independent firm with Vernon S. Watson. Tallmadge and Watson designed primarily residential buildings and their best known house is the Linthicum House in Evanston, Illinois. According to Carl W. Condit, Tallmadge was influenced by his experience in Burnham's office and the Arts and Crafts Movements.[1]

As well as the other two houses in the row, 5605 Woodlawn Avenue is characterized by a simple flat front broken by a two story stucco and beam projection rising above the main, recessed entrance. The almost wall to wall glass windows in the third story give the house a certain "Prairie School" flavor. The interior is characterized by a side hall plan. On the first floor are located a living room, dining room, and kitchen. There are four rooms and bath on the second floor and the third floor contains three rooms and two baths. The interior is neither ornamented nor detailed. Fifty-Six-Zero-Five Woodlawn Avenue is architecturally important as an example of the residential work of a firm of secondary importance in the history of architecture in Chicago. The house has undergone no significant alterations since its construction.

Robert A. Millikan lived at 5605 Woodlawn Avenue from approximately 1907 or 1908 to 1921, the year he left Chicago to move to California. It was during this period that Millikan made his most important contributions to physics.

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1. A brief discussion of Tallmadge is contained in Carl W. Condit, The Chicago School of Architecture, (Chicago, 1964), p. 208.

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
X 1900-	__COMMUNICATIONS	__INDUSTRY	__POLITICS/GOVERNMENT	__OTHER (SPECIFY)
		__INVENTION		

SPECIFIC DATES approximately 1907-1921 BUILDER/ARCHITECT Thomas F. Tallmadge and Vernon S. Watson

STATEMENT OF SIGNIFICANCE

When a member of the National Academy of Science dies, the Academy in accordance with its procedures publishes a biographical memoir of the deceased scientist. L. A. Dubridge and Paul Epstein, two distinguished physicists, wrote the Academy's biographical memoir of Robert Andrews Millikan. After studying Millikan's life and work, Dubridge and Epstein wrote, "Millikan was without question one of America's greatest scientists. He was, at the height of his career, not only the Nation's most renowned physicist but also a conspicuous educational leader and public citizen."[1]

LIFE

Robert A. Millikan was born March 22, 1868, in Morrison, Illinois, the son of a minister. When Robert was five the family moved to McGregor, Iowa, and two years later to Maquoketa, Iowa, where Millikan grew up. He attended local schools graduating from high school in 1885. Before going on to college Millikan worked for fifteen months as a court reporter and then entered Oberlin College. At Oberlin he studied both science and the humanities. By his junior year he had so impressed his teachers that he was asked to teach an introductory course in physics. After completing his undergraduate study in 1891 Millikan remained at Oberlin for graduate work earning an M.A. in 1893. By the time Millikan's years at Oberlin came to an end, physics had become his vocation.

Unknown to Millikan one of his Oberlin professors submitted his student records to Columbia University in the hope of securing a scholarship that would allow Millikan to go on for his PhD. Millikan learned of the honor when he read his name in the New York Times in the list of scholarship winners. Entering Columbia in 1893 Millikan, who at the time was the only graduate student in physics, studied under Michael I. Pupin, the distinguished physicist. During the summer of 1894 on Pupin's recommendation

1. L. A. Dubridge and Paul Epstein, "Robert Andrews Millikan," National Academy of Sciences Biographical Memoirs, 23, (New York, 1959), p. 241.

(Continued)

9 MAJOR BIBLIOGRAPHICAL REFERENCES

L. A. Dubridge and Paul Epstein, "Robert Andrews Millikan," National Academy of Sciences Biographical Memoirs, 23, (New York, 1959).
Albert Einstein and Leopold Infeld, The Evolution of Physics, (New York, 1938).
Robert A. Millikan, The Autobiography of Robert A. Millikan, (New York, 1950).

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY less than one acre

UTM REFERENCES

	ZONE	EASTING	NORTHING
A	16	450445	4426720
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
Historic Sites Survey, National Park Service

DATE
January 1976

STREET & NUMBER
1100 L Street NW.

TELEPHONE
202-523-5464

CITY OR TOWN
Washington

STATE
D.C. 20240

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

Millikan studied at the University of Chicago with A. A. Michelson, America's first Nobel prize winner in physics. When Millikan received his PhD. in 1895, he could look back with pride and say that he had studied under two of the country's leading physicists. Of Michelson-Millikan years later wrote, "I was much more impressed by Michelson than by anyone else I had thus far met."[2]

Supported by funds and introductions supplied by Pupin, Millikan spent 1896 studying in Europe. Upon returning to the United States he accepted an offer from Michelson to teach at the University of Chicago. Millikan was 29 when he joined the University of Chicago faculty and he immediately poured his young energies into his discipline. During his first decade at Chicago he consistently worked twelve hours a day, dividing his time among teaching, writing textbooks, and research. In 1900 Chicago sent him to Paris to set up an exhibit of the instruments with which Michelson had measured the speed of light. In 1902 he again returned to Europe, this time on his honeymoon, and he used the occasion to meet most of Europe's leading physicists. In 1908 Millikan began the electron experiments which made him famous and which he later called, "my oil drop venture."

The University of Chicago remained Millikan's academic home until 1917. With the outbreak of World War I Millikan accepted a commission as major in the United States Army Signal Corps and moved to Washington, D.C. to help organize the National Research Council. During the war in addition to his many duties with the National Research Council Millikan was especially active in assembling a group of scientists to work in submarine warfare and he also acted as director of the meterological unit of the Army Signal Corps. At the end of the war he remained an additional year in Washington assisting in the permanent establishment of the National Research Council and raising funds for facilities to house the organization.

With the war over and National Research Council firmly established, Millikan moved back to Chicago to resume his interrupted research.

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2. Robert A. Millikan, The Autobiography of Robert A. Millikan, (New York, 1950), p. 24.

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Although by 1920 Millikan had developed strong intellectual and personal ties to the University of Chicago, he decided to leave the school and move to California. Both George E. Hale, the distinguished astronomer, and Arthur A. Noyes, a leading chemist, had already moved there and Millikan found their offer of a handsome salary and liberal research funds persuasive. Millikan's move to Throop College of Technology, soon to become the California Institute of Technology, marked a turning point in his career. He continued to perform important research in physics, but a significant portion of his time and energies were drawn into the development of the school. Between 1921 and his retirement in 1945 as chairman of the school's executive committee, in effect the position of institute president, Millikan lead the California Institute of Technology to a position of financial stability and world prominence. Retirement did not mean the end of Millikan's interest in science and he remained active until the end of his long life. He died in California on December 19, 1953, aged 85.

WORK

During the first half of the 20th century the United States became a world leader in the physical and biological sciences. Numerous scientists, both native and foreign born, contributed to the development and expansion of the American scientific community. As the community grew developing its institutions and constantly expanding research directions, an elite cadre of outstanding scientists emerged within the community. From the beginning of this century until his death in 1953 Robert A. Millikan was a high ranking member of the American scientific elite.

In the history of physics Millikan's fame rests in part on his series of experiments that proved the electronic character of electricity. In these series of experiments (first published in 1911) Millikan employed charged falling oil drops to establish that all charges as well as changes in charge are whole multiplies of a least value, thus confirming the atomicity of electricity. The importance of Millikan's "oil drop venture" was that it proved the existence of electrons, historically the first subatomic constituent of matter to be identified. The rapid development of physics after 1911 was based on the universially held conviction that electricity is composed of indivisible electrons.

Millikan's work involving Einstein's photoelectric effect was also of major significance in the history of physics. In 1913 Millikan developed a complex machine by means of which he tested Einstein's 1905 photoelectric effect theory. In a series of sophisticated experiments employing Einstein's photoelectric equation Millikan completely confirmed the

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theory. Einstein himself credited Millikan with proving, "...conclusively the emission of electrons from solid bodies under the influence of light itself; which result of the quantum theory is especially characteristic for the corpuscular structure of radiation."[3] For his work in proving that the electron is an elementary charge and also for his work on the photoelectric effect, Millikan received the 1923 Nobel Prize in physics.

During his career as a research physicist Millikan also made important contributions to understanding the viscosity of air, the extreme ultraviolet spectrum, and cosmic rays. In relation to the latter Millikan was the first to use ballons to raise electroscopes high in the atmosphere and he also placed electroscopes in deep lakes. Among the results of Millikan's cosmic ray experiments was the proof that cosmic ray intensities do not vary with the position of the sun or stars and also the proof that the intensity of cosmic rays rises with altitude to a certain height, then reaches a maximum, and then declines.

Millikan's fame as a physicist inevitably led to his being called upon to participate in public affairs. When the United States entered World War I, the National Research Council was established to mobilize the American scientific community in support of the war effort. George E. Hale, the Council's first chairman, called on Millikan to help organize the Council and recruit scientists to work for government agencies. From 1916 to 1919 Millikan lived in Washington devoting his talents to the Council and its various undertakings.

Millikan is also remembered as an outstanding educator. In 1921 George E. Hale persuaded Millikan to leave Chicago to join him at what soon became the California Institute of Technology. Although the University of Chicago resented what it regarded as a great faculty raid (and still does), Millikan went to Pasadena for the purpose of helping establish a great scientific institution. "He was determined to found an institution," his biographers write, "where teaching and research went hand in hand, where a major assignment of resources to research would be achieved, where research would provide the creative atmosphere for stimulating teaching, and where young students would keep the freshness of the research spirit alive."[4]

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3. Ibid., p. 103.

4. Dubridge and Epstein, p. 249.

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Although Millikan's official administrative title was chairman of the executive council, he in fact functioned as the president of the school. Millikan was not alone in building the California Institute of Technology into one of the finest scientific schools in the country, but he more than any other individual was responsible for its success. In addition to attracting a prestigious faculty to the school he also was responsible for creating the Norman Bridge Laboratory, one of the world's most famous physics laboratories.

Millikan traveled widely and was in constant demand as a lecturer. He was elected to most of the scientific academies of the world and accumulated more honors and awards than any American scientist of his time. In the opinion of his peers Robert A. Millikan was indeed the nation's most renowned physicist and also a conspicious educational leader and public citizen.