

D-52

PEVI

HISTORIC STRUCTURES REPORT

PART I

BUILDING NO. 2 - MEMORIAL SHAFT

Perry's Victory and International Peace
Memorial National Monument

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1. Administrative Data

a. Name and Number of Building

Memorial Shaft - - Building No. 2

b. Use and Justification

The Monument was started in 1912 and dedicated in 1913. The first visitors were taken to the top in June 1915. The Memorial commemorates Commodore Oliver Hazard Perry's victory over the British in the Battle of Lake Erie September 10, 1813. It also symbolizes the century of peace between this country and Britain, which has lasted nearly 150 years. The great Doric column is 352 feet high and 45 feet in diameter at its base. It is built of 78 courses of pink granite from Massachusetts. Its capitol serves as an observation platform 1,280 sq. ft. in extent. An elevator inside the shaft carries visitors to the top from which on a clear day there is an uninterrupted view of 50 miles or more in an arc of 360 degrees. The penthouse above the platform is surmounted by a gigantic bronze urn 20 feet in diameter and 23 feet high from which a beam of light is directed upward at night. The Rotunda is made of Italian marble, Tennessee marble, Indiana limestone and granite. The doors are of bronze. On the walls are carved the names of Perry's ships and of the men who were killed or wounded in the battle. In three of the four entry ways are bronze tablets with statements by Presidents Taft, Wilson and one by Henry Watterson and two others

carrying the names of the members of the Perry's Victory Memorial Commission and those of the Committee in charge of the construction. Another carries the text of the Rush-Bagot Agreement of 1817. Beneath the floor in a steel crypt and marked by a simple statement in brass letters countersunk in the floor are remains of three American and three British officers killed in the battle. Rehabilitation of the structure, reconditioning of the plazas, and heating of the Monument have been approved as a part of the MISSION 66 program for the area.

c. Provisions for Operation of the Monument

The Monument will continue to be operated with regularly appropriated funds. Pending the construction of the Visitor Center, all interpretive activities will also be centered here.

d. Estimated Cost of Rehabilitation

Under MISSION 66, \$80,000.00 has been programmed for the 1961 fiscal year. Since the year 1963 is the sesquicentennial year of the Battle of Lake Erie, it is important that the program be adhered to. It is the present belief that the amount programmed will be sufficient, but rising costs may force a revision of this figure upward.

e. The Problem - General Statement

Because of long continued neglect, the problem of rehabilitation is complex. Over the years the mortar has weathered out of place. Leaching has contributed to its deterioration.

Condensation has been a continuing source of concern. These, coupled with seasonal freezing and thawing, has resulted in cracking, checking and plucking of both inner and outer surfaces. Different materials, possessing differing rates of expansion and contraction as the temperature changes, have complicated matters. Only since 1948 have funds been provided for repairs. In that year \$2,590.00 was provided, \$6,486.00 in 1949-50 and in 1952-53, \$39,953.00 was spent in cleaning and repointing the exterior. In 1955-56 \$4,032.50 was used to strengthen the elevator shaft and repaint the metal work. This is a total of only \$53,061.00. There were probably other sums spent in earlier years but the figures are not presently available. Leaving out the amount of \$39,953.00 which was primarily a cleaning job and did nothing to improve the actual condition of the Monument, actual funds spent for repairs to the structure itself have totaled only \$13,108.00 since 1948 and nothing between that year and 1936.

In the opinion of the writer the first necessity is to provide a means of drying the Monument from the inside. Thermodynamically controlled heat will in a relatively short time drive out or evaporate the moistures trapped in the walls. Then the cracks mentioned in Appendicies 1, 2 and 3 can be sealed with Silicone sealants and the cracks repaired. Then the outer wall may be repaired and cleaned. Following these the plaza blocks can be reset and sealed with some material which will

expand and contract sufficiently to prevent buckling and cracking of the blocks.

Following are my recommendations:

First: Research is needed to provide construction data for use in planning the work. Our records do not show any expenditures for repairs prior to 1936, when the Monument was turned over to the Government, although there must have been some.

Second: Engineering data are needed to best plan what is to be done and the sequence of different phases of the work.

Third: Studies to determine how best to accomplish our objectives as indicated above.

Fourth: Preparation of FCP's, plans and specifications are prerequisites to the Invitations to Bid and the awarding of contracts.

Fifth: Awards of Contracts to complete the work by 1963, the sesquicentennial year. It cannot be urged too strongly that qualified personnel be detached to supervise every phase of the work from start to finish.

2. Historical Data

November 14, 1907 Mr. Rodney J. Diegle, then Director of Publicity for the Board of Trade of Put-in-Bay made the suggestion that a memorial celebrating the 100th anniversary of the battle be held at Put-in-Bay. On December 28 the Board of Trade adopted resolutions calling for " a great Centennial Celebration on land and water, to be held at Put-in-Bay from June to September 1913" and inviting the National and State Governments and the American people at large to take part in such ceremonies and celebration.

In February 1908 Representative William A. Bense of Ottawa County introduced a joint resolution to both houses of the State Legislature of Ohio favoring the project. The measure passed without opposition. Governor Harris appointed five commissioners in accordance with the terms of the Resolution. The following year the Legislature appropriated \$3,000 to continue the preparations for the celebration. No mention of a memorial structure was made.

Mr. Webster P. Huntington, who later was to serve with distinction as Secretary-General of the Inter-State Commission, conceived the idea that a Memorial Chapel in the park fronting the bay might arouse interest in the other lake states and induce them to contribute. The idea caught on and the commissioners recommended a permanent building on Put-in-Bay in their first

report to the Governor dated December 29, 1908.

It was at this point that John Eisenmann, an architect of Cleveland became interested. The historical meaning and the possibility for artistic treatment of the proposed memorial building appealed to him strongly. He conceived that by adding certain utilitarian features to the structure, the whole idea should appeal powerfully to the general public and so receive much wider support. On his own initiative he produced a water-color drawing embodying his ideas. This was used with good effect in soliciting funds from the eight participating states and the Federal Government. The sum of \$350,000 was raised by appropriations from the States, Ohio, Pennsylvania, Michigan, Illinois, Wisconsin, New York, Kentucky, and Massachusetts, and \$250,000 from the Federal Government. On September 10, 1910 the Inter-State Commission approved the site chosen by Mr. Eisenmann but referred the selection of design to the Executive Committee.

The Committee agreed that the design and architect should be selected by means of a nation-wide competition. The National Fine Arts Commission, recently established by Congress, consented to judge the entries. Fifty-four complete exhibits of drawings and plans filled the great hall of the National Museum. First prize designating the winner as the architect for the Memorial was won by J. H. Freedlander and A. D. Seymour of New York.

Ground was broken October 1, 1912 and on the 9th, 10th and 11th of September 1913, climaxing a summer-long series of ceremonies all along the lake, dedication ceremonies were held at Put-in-Bay. President Taft was the main speaker. The bodies of three American and three British officers were removed from the Village Park and re-interred in the crypt under the Rotunda of the Monument.

June 13, 1915 the work begun nearly three years before was completed. A majestic Doric column stood 352 feet above the waters of the lake. This was the culmination of seven years of dreaming, planning and fund raising. Because of its national character, its international appeal to the cause of universal peace, and the cooperation between the eight states and the Federal Government, the Commissioners felt that the Monument should be under Federal ownership. Accordingly by Act of Congress signed by President Wilson March 3, 1919, the United States accepted the transfer of the Monument from the State of Ohio and the Commissioners. Administration continued in the hands of the Commission until July 2, 1936 when Congress established Perry's Victory and International Peace Memorial National Monument as a part of the National Park System. William Schnoor was appointed as Custodian July 1, 1936 by the National Park Service and served until October 31, 1946. He had previously served in this capacity under the Commission.

During the depression and the war years, funds were not available for even minor repairs. Hence the Monument has deteriorated badly. Under MISSION 66 it is expected that the Monument will be restored to excellent condition. After this is done, only moderate sums should be sufficient to keep it so.



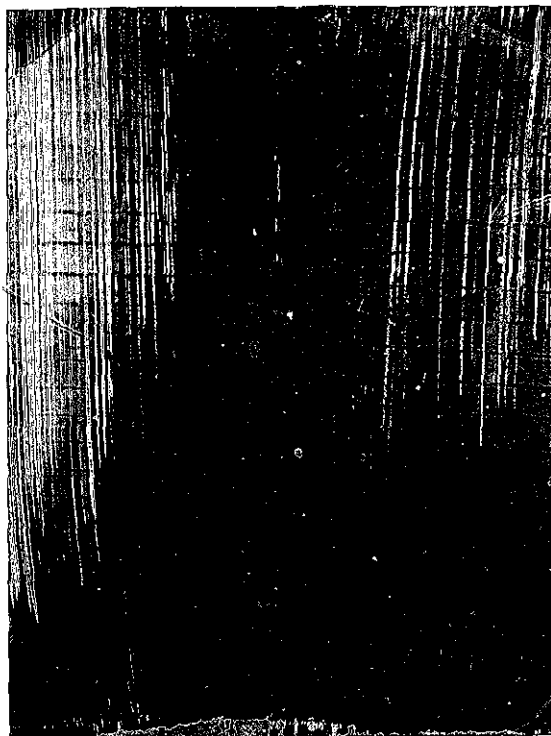
Northwest Wall (Inside)

This crack extends from

top of shaft to
elevator landing

Note Plucking

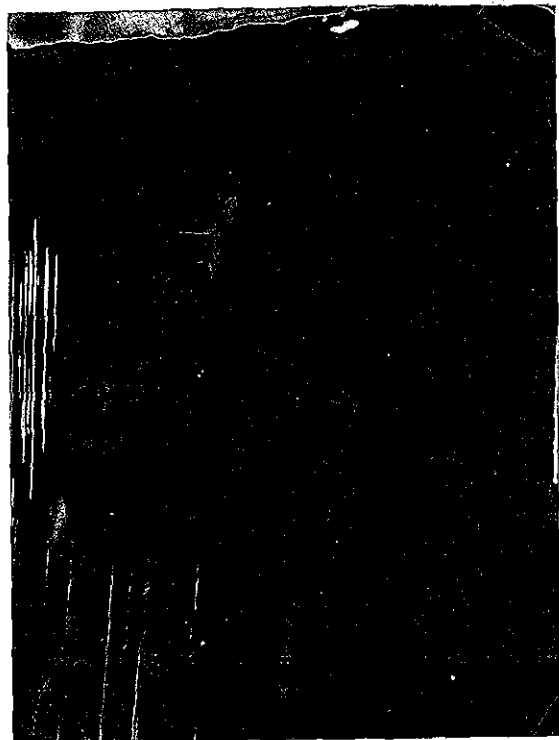
Crack
extends
from middle
to bottom
of Shaft



Crack
extends
from top
to middle
of Shaft

North Wall (Inside)

Note Efflorescence



Southeast Wall (Inside)

Crack extends $\frac{2}{3}$ the
Length of shaft

Note Plucking and
Efflorescence

APPENDIX I -

Memorandum - Joseph R. Prentice

dated December 8, 1953 - File No. D5023

"Heat in the monument shaft would seem to solve a multitude of problems. - - - - Humidity within the shaft depends upon five factors: inside and outside temperatures, outside humidity, the amount of air flow through the shaft and the amount of seepage. The direction and velocity of the wind is the prime factor determining air flow through the shaft. To a certain extent, we can control or influence air flow due to wind by opening or closing certain doors at the base and at the top. This control is restricted during the visiting season.

" In general, the humidity within the shaft is lower than that outside whenever the true inside temperature is higher than that outside. Whenever the inside of the shaft is much colder than that outside, humidity rises to over 100% with resulting condensation. Condensation and seepage have been known to run as high as 410 gallons in 24 hours. This was under extreme conditions of warm rainy weather and low inside temperatures coupled with high winds and the flow of tourists such that we had to keep the doors open.

" - - - - Water and dampness in the shaft cause rusting and deterioration of metals, seepage through the walls and ceilings, discoloration of stones, deposits of lime salts, favor the growth of

molds on stone as well as adversely affecting water expansion measurements. This latter has probably caused or contributed largely to the cracking and shearing of the brick lining due to absorption of water. Freezing temperatures within the shaft coupled with extreme moisture conditions can do very great damage. Normally, the inside shaft temperature is below 32 degrees for approximately 45 days per year. The latter portion of this period marks the beginning of high humidity readings. Water that has been accumulating within the stonework all winter seems to move to the inside cold wall as soon as inside temperatures start to rise.

" - - - - - The problems of the installation of a permanent heating system are not as difficult as would seem. There are existing ducts through the shaft foundation. The writer has been through them and made drawings of the space below the rotunda floor."

APPENDIX II -

Inspection Report - John A. Dickinson

dated November 18, 1957 - File No. 10.5:1

" - - - - - The masonry is deteriorating at an accelerated rate. A considerable number of the Indiana limestone blocks forming the rotunda are badly stained. A few years ago there was only one light stain over the door to the left of the main entrance.

"Cracking of interior brickwork is continuing and cracks in exterior granite have grown. There are several "weeps" in the exterior granite and at least one in the interior brickwork; all this in addition to the steady drip near one of the columns.

It is suggested that a joint inspection be made by a masonry expert, together with a good masonry contractor; the latter to suggest methods and to give a rough estimate of cost of the work to be done.

" Through a copy of this letter, I am suggesting to Superintendent Houston that he cover the grating at the elevator machinery level to help the electric heaters maintain an above-freezing temperature inside the tower. Plywood or an insulating board cover would eliminate much of the "chimney effect" at the top of the shaft.

" Within the next few years this monument will need extensive repairs if the present deterioration is to be checked."

APPENDIX III -

Memorandum - Aubrey F. Houston

Dated August 5, 1958 - File No. D5023

"When Mr. J. C. Crouch was here not long ago, the subject of heating the Monument came up again.

"Prior to his visit I had contacted the Westinghouse representative and the Ohio Edison Company. They came up with a proposal which may be satisfactory.

" Their Engineers figure that two UB #1001 - 10 K W heaters would provide enough heat to keep the interior of the Monument at approximately 50 degrees during the winter months. These would cost approximately \$450.00 installed with thermostatic controls. Electrical energy would cost about \$50.00 a month more than we are paying now, in other words \$250.00 to \$300.00 per month during the approximately five winter months.

" I realize that our Building and Utility funds are far short of the needed amount but I feel that prevention of condensation in the Monument is extremely important.

" Your consideration and comments are earnestly requested.
Thank you."

APPENDIX IV -

Letter - Roy H. Robinson

Dated September 22, 1955

I am very appreciative of and deeply interested in your detailed letter of March 8th with regard to data on "our baby", the Perry Memorial Column, but am most deeply mortified that other matters, absence and sickness caused me to overlook acknowledgment of your valued letter. I trust you will overlook what must have appeared unpardonable negligence. I was gratified to see that "our baby" was in such good hands and I trust you will be on the job there for a long, long, time.

I was much interested in the checks and records you have kept on interior conditions of temperatures and humidity which are most valuable and instructive. I have long made mental notes on the weathering and deterioration of building structures and materials and from my observations have attributed much to moisture absorption and freezing, and abrupt changes in temperature. In the present case of the Column, however, I do not believe these are major or the major factors. I am personally convinced that the vertical cracks in the shaft granite and backing are primarily due to the heavy load of the massive capital of solid masonry and the heavy compression so developed in the long shaft with the daily elongation resulting from the heating action of the sun. I think if the designing engineers had reinforced the concrete backing against compression, - after the manner of reinforced concrete structural building columns, - this vertical cracking might possibly have been avoided. I also doubt if these cracks would have occurred in the shaft if it had not been surmounted with this unique capital of massive monolithic reinforced concrete and granite which necessary lifts as one unit with expansive pressure from below, - so bringing its entire load, more or less, to bear on a single point in the shaft where the elongation becomes greatest during the day with the movement of the sun. The capital itself is a mass of reinforcing bars embedded in the concrete, so permitting little elasticity or "give" at a single point whereas the sun heat and resultant elongation will develop a maximum at a given point (or limited area) which point accordingly (in general principle) has to lift the entire monolithic cap, or tip it, enmasse. That, at least, is the picture I get and perhaps you will agree with me. The fact that the shaft is round in cross-section makes this "single point" of maximum heating, which does not

similarly arise with a flat square face, as in an obelisk, (at least unless the corners are located with one directed toward the hot spot).

My prime worry, if any, would be that the vertical cracking might continue to extend downward in course of time and so reach the stairways formed in the wall. I always considered bad construction the placing of the stairways in the wall and so cutting away the masonry at the base and point of greatest load. I am wondering if you have found any further extension of the cracks since last writing.

For your information, the courses of granite interbond with the concrete backing by being alternately thick and thin and the thickness of the granite (as well as the backing wall) gradually diminishes until at the top a single capstone tops the shaft wall out and on this capstone the entire capital rests. It is a safe bet that the vertical cracks in the granite ashlar occur in the thinner alternate granite courses to connect with the build joints of the thicker courses. A notable character of granite is of course its splitting qualities (Which makes it workable for cutting purposes).

The granite was set in the customary manner. The blocks, being of great weight, were set with the usual wood wedges to prevent the stones from squashing the mortar bed out and hold same to the proper thickness as well as to enable the stone setter to bring the stones into proper position and level by tapping these resting wedges, which you have observed. The stones are bedded solid with mortar and the concrete poured backing would only flush in under the rough overhang of the roughed backs of the stones. The vertical build joints were filled solid with mortar after the stones were bedded, in the customary manner. This is done by holding a backing stick on the outside ~~fixing~~ against the joint, throwing the mortar in with the trowel and troweling it up. After the column was finished we sandblasted and pointed the granite work.

I can readily understand that after a number of years the vertical joints could weather out somewhat as Portland cement shrinks in setting and so tends to leave hair cracks between the mortar and the granite. The moisture soaking into these crevices and freezing and thawing alternately tends to gradually break out the mortar, particularly as there must be a concurrent grinding action occurring with the daily temperature expansion and contraction of the opposed stones.

The Column was substantially completed at the end of 1914 and I visited the island in 1916, - my last visit there prior to a year ago. At that time a strange phenomenon had developed. The granite was streaked black below the build joints for a considerable depth below. We had been required to paint the back and sides of the stone with RIW paint and I immediately figured that the above joint grinding action had been going on for two years or more and had ground off small particles of paint in the build joints which had washed down on the face of the shaft. Before checking I anticipated that this grinding would be greatest on the southeast exposure and, sure enough, it turned out that was where the greatest streaking was. I suppose after all these years that has come to an end, - or does it still appear?

With regard to the Brooklyn column you speak of, - I might mention that when we were building the Perry Column I went over there and checked that small Doric column as well as doing likewise with the Washington Monument in Washington. I observed no cracks that I recall in the Brooklyn shaft but my interest at the time was more particularized centered about other problems. I also did not go up inside and am not informed as to the construction of its capital but it is doubtless quite different from our unique Perry Column and too small to develop anything like the same problems. I don't get East anymore or I would like to take another look at it and particularly with you. Incidentally, a very old friend of mine, who lived with me in New York, was a draftsman for McKin Mead and White at the time I guess the Brooklyn column was built and now has the honor of being the architect for the Empire State Building.

Of course the size, and with the massive weight of the monolithic capital of the Perry column, presents quite a different problem, - one really all its own. I believe my diagnosis is verified by the fact that you have found the entire shaft daily leans away from the sun. That means that the hot section on the central south side of the shaft has to raise and tilt the entire monolithic capital daily, bringing this terrific compression at a maximum on this section of the shaft and with a resultant but somewhat lesser reciprocal action on the opposite central portion of the north wall. It would be interesting by checking with spirit levels to see how much the capital parapet walls tilt downward to the north with this daily passing of the sun.

The torque you have discovered at the gallery floor is most interesting. Unquestionably this also results from the expansions caused by the rotating sun heat and the ~~xx~~ fact the walls will heat faster at the top than at the bottom. This is a complicated reaction. Does the twist move clockwise? I suspect so.

With regard to your further question, I do not believe that the heating of the interior of the column is of great importance and I do not think it would have much relation to this compression - cracking solar problem. It is, however, not desirable to have repeated freezing and thawing going on in the inside masonry, particularly when there must necessarily be large moisture condensation. Combustion heating is certainly objectionable but if you could use some electric panel heaters to keep the interior above freezing point I should think it very desirable.

Answering a further question, the granite ashlar of the shaft, in addition to having alternately thicker and thinner courses to interbond with the concrete backing, has each stone secured with two galvanized iron hooked bars.

If you will let me know that you are still at Put-in-Bay and have no blueprint of the Column, I think I can dig you one up now for the permanent files of the Memorial.

June 24, 1959

DIV. OF DESIGN AND CONSTRUCTION	
JUN 26 1959	
2	Vint <i>hook</i> <i>2-x</i>
	Morrell
	Miller
	Sager
	Sutton <i>SR</i>
	<i>Flag</i>
	D&C Files
	Records Files

Memorandum

To: Regional Director, Region Five

From: Acting Chief Architect

Subject: Historic Structures Report, Part I, Memorial Shaft -
Perry's Victory & IPMS

The Historic Structures Report, Part I, Memorial Shaft,
Perry's Victory & International Peace Memorial National Monument,
has been reviewed by the interested Divisions in the Washington
Office and is recommended for approval.

SUTHER

Charles W. Lessig
Acting Chief Architect

Copy to: Chief, HADC (2)
Supt., Perry's Victory
Branch of History
*/*Mr. Vint

CWLessig:1hr

Region Five
421 Walnut Street
Philadelphia 6, Pa.

June 17, 1959

Memorandum

To: Director

From: Acting Regional Director

Subject: Historic Structures Report, Part I, Memorial Shaft -
Perry's Victory & IPHSM

Attached for your review are two copies of the subject report. It consists of an Administrative Data Section, an Historical Data Section - both prepared by Superintendent Houston - and a letter from Mr. Roy H. Robinson dated September 22, 1955, an engineer associated with the monument and the problems peculiar to it many years ago.

We are sure that you will find Mr. Houston's report of considerable interest; in our opinion, he merits commendation in preparing it.

The report should be reviewed and comments submitted by no later than June 30. Our comments will follow.

(Sgd.) George A. Palmer
George A. Palmer
Acting Regional Director

In duplicate ✓

Attachments 2

Copy to: Supt., Perry's Victory
Chief, EODC, w/copy of Report

Perry's Victory and International Peace
Memorial National Monument

APPROVAL SHEET

Recommended:

Director

Recommended:

Regional Director

Recommended:

Chief, EODC

Approved:

Superintendent