Monticello re-creates sundial, Jefferson style

By Carlos Santos
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CHARLOTTESVILLE, Va. — Shortly after Thomas Jefferson left the White House and returned to Monticello, he devised an unusual spherical sundial to adorn a special capital outside the mountaintop mansion.

The original sundial had vanished by several years after his death, but now a painstakingly re-created version has returned to Monticello's north terrace, measuring solar time with an elegant simplicity Jefferson so admired.

"My dial captivates every body foreign as well as home-bred, as a handsome object & accurate measurer of time," Jefferson wrote in June 1817 to noted architect Benjamin Latrobe.

Jefferson's original sundial was made at Monticello between 1809 and 1816. This new one — rebuilt with some historical detective work and about $10,000 — is part of Monticello's continuing effort to accurately re-create Jefferson's life at home.

It's easy to imagine Jefferson and his many guests admiring the sundial, sitting around it perhaps in garden chairs. Jefferson placed it on his public terrace where his granddaughter wrote, "the view is sublime" and here "Jefferson and his company were accustomed to sit, bare-headed, in the summer until bedtime, having neither dew nor insects to annoy them."

"Some sundials are quite complicated to deal with. This one is not," said William L. Beiswanger, director of restoration at Monticello. "It's really turned out to be rather accurate."

Mr. Beiswanger said he believed Jefferson thought up the device himself, because no evidence existed of spherical sundials in North American before Jefferson produced his. Various types based on the same principle existed, however, in Europe.

Jefferson, in a letter to Latrobe in 1816, wrote that his spherical sundial "may be no novelty. . . . It is one however to me."

According to Jefferson's design, the sundial's 10 1/2-inch sphere was turned out of black locust with horizontal lines drawn for the Equator, the Tropic of Cancer and the Tropic of Capricorn.

Vertical lines are drawn between the tropic lines to indicate the hours of the day. Drawn between each of those lines are progressively shorter lines to indicate half-hour, quarter-hour and five-minute intervals. Roman numerals at the bottom part of the globe indicate the hours.

The sphere is mounted on a simple but elegantly tapered neck. The key to the accuracy of the sundial is the boring of a mounting hole so it represents the nadir of the latitude where it is placed — in Monticello's case 38 degrees, one minute north. This gives the angle of tilt for the globe.

Next, the globe's "noon line" is aligned with the true north/south axis.

The rest is simple. A meridian of thin sheet iron, which pivots on the globe's north and south poles, is moved until the bar casts the least shadow — when the sun is directly in line with the meridian — marking the solar time. The solar time then can be translated through charts to standard time if necessary.

Letters and other documents indicate Jefferson's idea of creating the sundial came from Latrobe's gift in 1809 of a model of a capital, the top part of a column, that Latrobe had designed for the vestibule of the Senate wing of the U.S. Capitol.

The uniquely American capitals featured ears of corn and are known as the "corncob" capitals. The original capital, sent by Latrobe to Jefferson in 1809, has not been found.

Jefferson wrote Latrobe he had placed the capital on a pedestal but then thought it "looked bald for want of something to crown it." He decided to cap it with "a globe and its neck, as is usual on gate posts," but was dissatisfied with that idea because it "presented no idea of utility." Jefferson liked inventions that were both aesthetically pleasing and useful.

He then thought the globe "might be made to perform the functions of a dial."

The original location of the sundial came from a description by John Latrobe, son of the architect, who visited Monticello in 1832, six years after Jefferson's death, and discovered the pedestal at the "corner" of the northwest terrace. He said the corncob capital had been thrown away or had fallen off the pedestal. He made no mention of the sundial.

Mr. Beiswanger had been thinking about re-creating the sundial for years but needed approval from the U.S. Senate to reproduce the capital found in its old vestibule. In September 2000, Monticello received approval from the U.S. Senate Commission of Art allowing it to reproduce Latrobe's corncob capital.

With the help of letters and documents, including specifications by Jefferson and some intelligent guesswork, the sundial was rebuilt with few modifications. Mahogany was used to make the globe instead of black locust because it was more durable, stable and easier to find.

In the late 1950s and early 1960s, a version of the spherical sundial, though a less-accurate representation, was displayed on the north terrace, but was removed after it was damaged.

The newest re-creation of the sundial is "a great way of helping our visitors understand Jefferson's sophisticated interest in science," said Dan Jordan, the head of Monticello. "It's a three-dimensional example of his love of beauty, simplicity and technology."

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A shadow is cast on a reproduction of a Thomas Jefferson spherical sundial at Monticello. Shortly after Jefferson left the White House and returned to Monticello, he devised an unusual spherical sundial to adorn a special capital outside the mountaintop mansion. The original sundial vanished but now a painstakingly re-created version has returned to Monticello's north terrace, shown off by director of restoratin William J. Beiswanger.