

MASON AND DIXON & THE DEFINING OF AMERICA

*Iconic Treasures from the Maryland Historical Society,
Independence Hall, and the Maryland State Archives*

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By David S. Thaler

In the Thaler household we enjoy reading the *London Daily Mail* on Sunday. It has much juicier political gossip than our local papers, and often it has rather interesting perspectives on American politics and history. One recent column on the possibility of an Obama presidency caught my eye. It began, “The first time I ever crossed the Mason Dixon Line, that imaginary boundary meant to separate the liberal North from the slave-owning South before the American Civil War...”

First of all, the Mason Dixon line was never meant to separate anything other than the colonial provinces of Maryland and Pennsylvania, and second: it may be legendary and it may be iconic, but it is certainly not imaginary—it is quite real indeed. A new exhibition at the Maryland Historical Society will focus on the line as the world’s first geodetic survey and the greatest scientific and engineering achievement of its age. Therein lies quite a tale.

Our story begins with Sir George Calvert, a Catholic, who was the Secretary of State to the Protestant King James I of England. For his loyal service to the Crown he was created Lord Baltimore and was eventually granted a province in the New World that he named Maryland. On June 20, 1632, the Royal Charter granted to Lord Baltimore all the territory from the Atlantic Ocean “unto the true meridian of the first fountain of the River Potowmack” and from the south bank of the Potomac River to include all

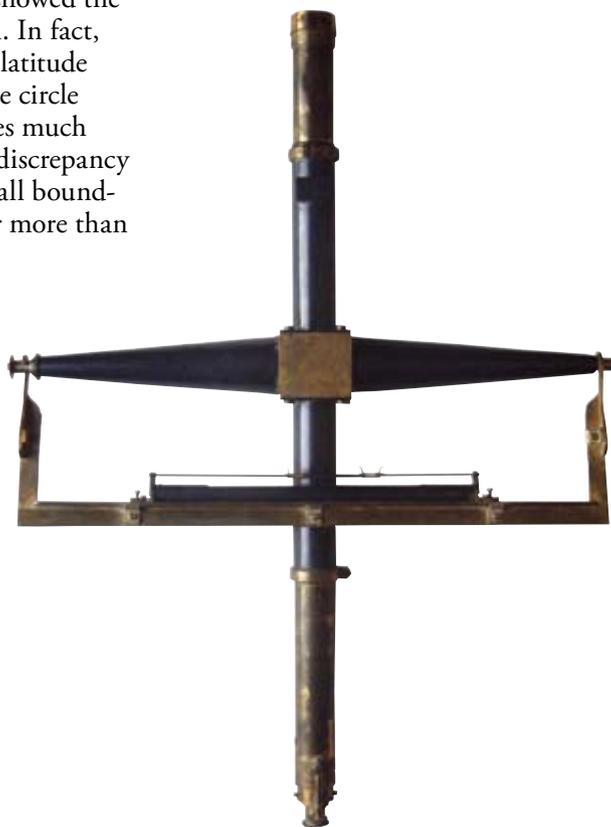
land “which lieth under the Fortieth Degree of North Latitude.”

The other player in our story is Sir William Penn, a distinguished admiral in the Royal Navy who had loaned the profligate King Charles II the stupendous sum of 16,000 pounds sterling. In exchange for discharging the debt, his son, also William, was granted the province of Pennsylvania. Penn was given all of the land for five degrees of longitude west of the Delaware River between the 43rd and the 40th parallels, excluding a “twelve mile circle” around New Castle in what is now Delaware.

Unfortunately, the maps at the time were based upon the map of the Chesapeake region made by Captain John Smith in 1608, that showed the 40th parallel too far south. In fact, the 40th parallel of north latitude does not intersect a 12-mile circle around New Castle but lies much further north. It was this discrepancy that set off the mother of all boundary disputes that raged for more than 80 years.

The dispute was so bitter because the stakes were so high, about two-and-one-half million acres of territory were in question. Depending upon the location of its border, Pennsylvania could have been denied both Philadelphia and access to the sea. It was also unclear to which Proprietor taxes were due and violence broke out sporadically along the border.

In one famous case, Col. Thomas Cresap, who operated a ferry on the Susquehanna near the 40th parallel, confiscated land for Maryland and refused to pay taxes to Lancaster County. In what became known as “Cresap’s War,” he was arrested and hauled through the streets of Philadelphia, where he is



This Transit and Equal Altitude Instrument is the only surviving instrument used in the Mason Dixon Survey. It was commissioned by Thomas Penn (son of William Penn, Proprietor of Pennsylvania), from London’s finest instrument maker John Bird in 1763. *Courtesy of Independence Hall National Park, Philadelphia.*

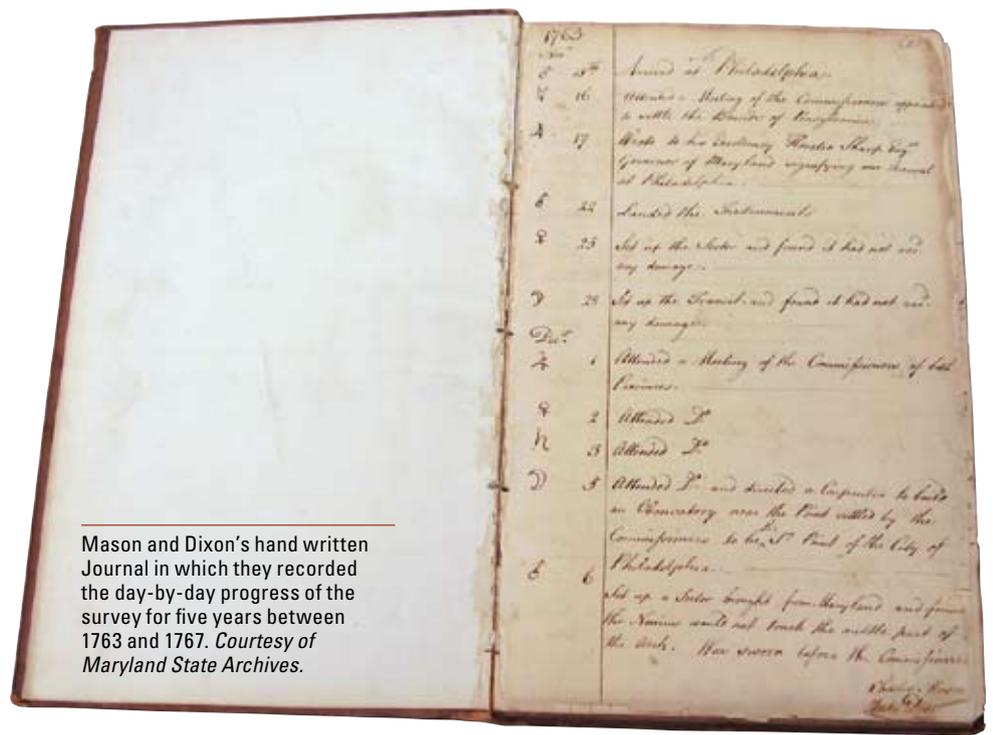
reported to have exclaimed, “Damn, this is one of the prettiest towns in Maryland.” Finally the King in Council ordered the Proprietors to suppress the violence and to stop issuing patents in the disputed areas.

After a lot of contention about the location of the boundary, on May 10, 1732, the parties entered into a settlement agreement. They agreed that the boundary should run west from Cape Henlopen on Fenwick Island to the midpoint of the peninsula, then north to intersect a tangent with the twelve mile arc around New Castle, then north, and finally along an east-west line fifteen miles south of Philadelphia. The controversy continued, however. In 1735, the Penns filed a complaint in the English courts that became known as the Great Chancery suit. The case was litigated over a 15-year period at enormous cost to both sides until in 1750 the Lord Chancellor rendered a decision.

The southern boundary of the lower three counties of Pennsylvania (now Delaware) would be at the latitude of Cape Henlopen. The peninsula would be divided equally. The center of the twelve mile circle was to be measured horizontally as a radius from the center of New Castle as closely as it could be determined and the east-west line would run at a constant parallel of latitude, 15 miles south of the city of Philadelphia.

The Proprietors appointed Boundary Commissioners who engaged colonial surveyors to begin marking the boundary. The 1751 Surveyors’ Journal is among the Calvert Papers at MdHS. The papers include about 1300 priceless documents dating from 1599 to 1803. Many of them relate to the Maryland-Pennsylvania boundary dispute and the work of Mason and Dixon.

Although swamps and dense vegetation made work on the transpeninsular line difficult, the Colonial surveyors were able to locate and mark the midpoint of the peninsula. The transpeninsular survey and midpoint weren’t approved in London until 1760 and on December 13, 1760, Colonial



Mason and Dixon’s hand written Journal in which they recorded the day-by-day progress of the survey for five years between 1763 and 1767. Courtesy of Maryland State Archives.

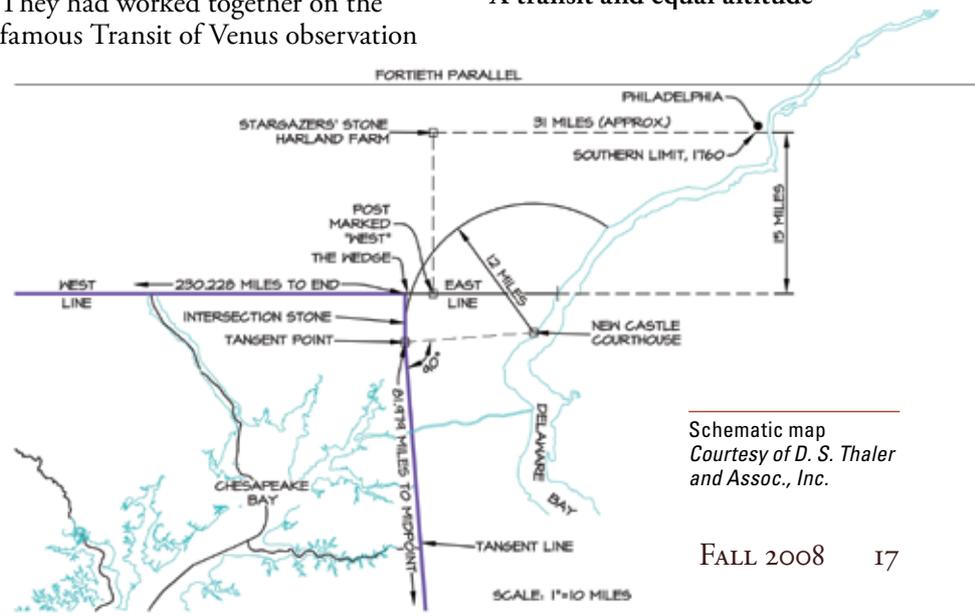
surveyors began the task of running the tangent line—the line from the midpoint of the peninsula to the point of tangency with the twelve mile circle around New Castle. This was a lot harder than it looked on paper given that the line was more than 80 miles long, the terrain difficult, and the equipment poor.

After three unsuccessful attempts by the colonial surveyors to run the line, the Proprietors consulted the Astronomer Royal for suggestions on surveyors who could complete the task. Charles Mason and Jeremiah Dixon were recommended. Dixon was an experienced surveyor from County Durham and Mason had been an assistant at the Royal Observatory in Greenwich. They had worked together on the famous Transit of Venus observation

of 1761. (The Transit of Venus is an astronomical event that occurs twice each century. Edmund Halley had predicted the event and left instructions on how it could be measured.)

Mason and Dixon entered into a contract with the Proprietors and arrived in Philadelphia on November 15, 1763. They had brought with them state-of-the-art equipment specially made for the Penns by the famous London instrument maker John Bird. These included:

- A **zenith sector**—A six-foot telescope mounted on a six-foot radius protractor scale used to determine latitude by measuring the angles of reference stars from the zenith in the sky;
- A **transit and equal altitude**



instrument used to determine true north by tracking stars where they crossed the Meridian; and

• **A Hadley Quadrant.**

The British experts also brought an astronomical regulator—a long case pendulum clock, Gunter’s chains and wood and brass measuring rods used to measure level horizontal distance across sloping ground, and various reference books.

After meeting with the Commissioners, Mason and Dixon began their task at the north wall of a house on Cedar Street (now South Street) that had been determined to be the southern point of Philadelphia. They constructed a temporary observatory near the house and from detailed astronomical observations, determined its latitude, 39°56’18.9” North.

As going 15 miles due south would have taken them through the Delaware River, they decided to proceed west 31 miles to the farm of John Harland in what is now Embreeville, Pennsylvania, at the “forks of the Brandywine.” There they set up another observatory and a reference stone that came to be known as the “Star Gazer’s Stone.” By observing various astronomical events and comparing them with the published times, they were able to determine their longitude. The two seemed to enjoy their winter in Pennsylvania and whiled away many evenings in the local taverns.

In the spring of 1764, Mason and Dixon set off south where they placed an oak post that they called, “Post Mark’d West,” in John Bryan’s field at a point exactly 15 miles south of the latitude they had determined in Philadelphia. This was to become the starting point of the famous West Line.

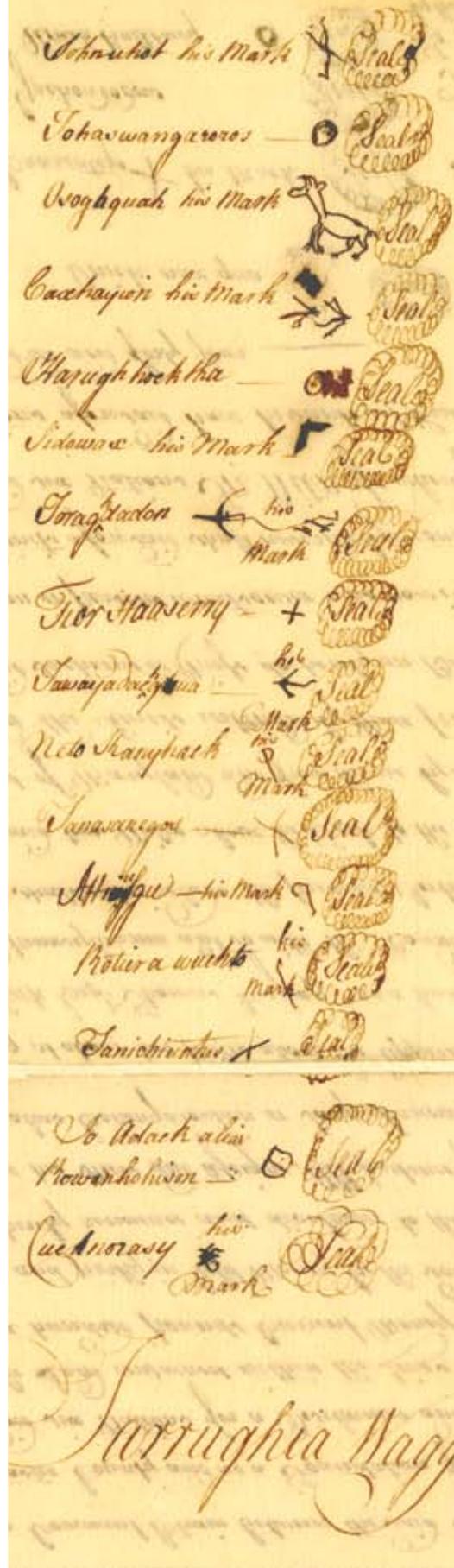
They then headed to the middle point of the transpeninsular line that had been previously marked by the colonial surveyors. A letter from Mason and Dixon to Lord Baltimore dated December 4, 1764, explains their procedure. Mason’s elegantly simple solution was to run a dead-straight line and then adjust it proportionally. Accordingly, Mason

and Dixon selected a convenient star in the tail of Ursa Minor, proceeded northwards, and measured offsets to the line previously run until they reached the vicinity of the tangency. The distance to the tangent point, that had previously been established by the colonial surveyors was measured and the distance was proportioned back along the line with offsets calculated to bring each marker to its proper location. They then checked the angle at the tangent with their Hadley quadrant and it measured a perfect 90 degrees.

On March 11, 1765, they returned to the “Post Mark’d West” to begin the monumental task of running the West line. Poor weather delayed their start but on April 5 they were able to finally begin. They ran as far as the Susquehanna River stopping along the way to take astronomical observations to determine latitude. Before crossing the river, they returned to run the lines from the tangent point to the now established West line and they set stones to mark the line in the presence of the Boundary Commissioners. They were then instructed by the Commissioners to “continue the parallel of latitude as far as the Country is settled.”

Mason and Dixon were accompanied by a sometimes huge work party that set stones sent from England every mile and “crown stones” every five miles. By October 7, 1765, they had proceeded 117 miles 12 chains and 97 links from the “Post Mark’d West” in Mr. Bryan’s field. They stored their instruments at the home of Captain Evan Shelby, a local magistrate, for the winter and returned east to the Harland Farm. They resumed again in the spring and proceeded as far as Sidling Hill, where their wagons were unable to proceed any further.

On June 18, 1766, the two reached the Allegheny Mountains, established by King George as the western limit of English settlement. The Seven Years War (known in America as the French and Indian War) had just ended and English relations with the French were still



The agreement between Mason and Dixon and the Six Nations allowing them to proceed beyond the Alleghenies. The Native Americans signed in pictographs.

dicey. The English were allied with the Six Nations against the French who had their own Indian allies. George III did not want to antagonize his Indian allies and prohibited English settlement west of the Alleghenies.

While they waited for permission to proceed, Mason and Dixon applied to the Royal Society for a grant of £200 to measure a degree of latitude. Their proposal was accepted and using the lines previously cleared, they measured the first degree of latitude ever measured in the New World.

Meanwhile, negotiations with the Six Nations continued and greased by a payment of 500 pounds sterling, permission was secured to proceed beyond the Alleghenies. In July 1767, three Onondagas, eleven Mohawks, and an interpreter were dispatched by the Six Nations to guide the survey party that had now grown to 115 men.

On October 9, 1767, the party encountered “the Great Warrior Trail” (shown on their map as “War Path”). This was one of the most important Indian trails in the country, running from New York to South Carolina, sort of an Indian I-95. The chief of the Indians informed the surveyors that the “War Path,” “was the extent of (their) Commission from the Chiefs of the Six Nations” and that “they would not proceed one step further westward.”

The line was extended an additional 250.8 feet to the top of the next ridge, Brown’s Hill, and after setting up a tall post and a conical mound at 233 miles 17 chains and 48 links from the “Post Mark’d West,” the Mason Dixon survey came to an end. Mason and Dixon returned to Philadelphia and were instructed to draw a map of their survey; 200 copies were printed. Two of the copies, signed and sealed by the Boundary Commissioners, three of whom later signed the Declaration of Independence, are among the Calvert Papers.

On September 11, 1768, Charles Mason wrote in his journal “at 11h 30m A.M. went on Board the Halifax Packet Boat for Falmouth. Thus ends my restless progress in America.”

Jeremiah Dixon returned to his surveying practice in County Durham, where he died in 1779. Mason came back to America in 1786 with his wife and eight children but died shortly thereafter and is buried in an unmarked grave in the Christ Church burial ground in Philadelphia. There is no known portrait of either of them. Their line lived on however.

In 1820, Congress adopted the Missouri Compromise and first used the term “Mason Dixon Line” to describe the Maryland-Pennsylvania border. States north of the Mason Dixon Line were to be free and those south were slave states. And so the Mason Dixon Line became an icon—the dividing line between slavery and freedom.

Although Mason and Dixon returned to England, the Bird instruments that belonged to

the Penns remained behind. A small observatory operated by the American Philosophical Society was constructed on the grounds of the Pennsylvania State House, that we now know as Independence Hall, and the instruments were stored inside. The second Transit of Venus was observed there in 1769. The observatory had steps and, being on the grounds of the State House, it provided a convenient stage from which public announcements were made during the unrest leading up to the Revolution. It was from these steps that Col. John Nixon, leader of Pennsylvania’s Committee of Safety, first proclaimed the Declaration of Independence to a thronging crowd on July 8, 1776.

In 1912, during renovations to the bell tower of the State House, floorboards were removed under the old supports for the Liberty Bell and to great surprise the Transit and Equal Altitude Instrument was discovered. No one knows why it was hidden there and forgotten. But whatever the reason, the little Transit is itself an icon: arguably the most historic American scientific instrument ever, having witnessed two of the seminal events in American history: the survey of the Mason Dixon line and the first reading of the Declaration of Independence.

David S. Thaler, P.E., L.S., F. ASCE, F. NSPE, is the President of D. S. Thaler & Assoc., Inc., a civil engineering, landscape architecture, surveying and community planning firm in Baltimore, Maryland. He is the immediate past president of the Maryland Society of Professional Engineers, and Trustee of the Maryland Historical Society. Thaler also serves as a Lt. COL (MD) in the Maryland Defense force.

The exhibition is curated by Jeannine Disviscour, Deputy Director for Collections and Curator at the Maryland Historical Society.

