NOTES AND DOCUMENTS

The Mason-Dixon Survey at 250 Years: Recent Investigations

ABSTRACT: The year 2013 marked the 250th anniversary of the 1763 start to the iconic land survey by Jeremiah Dixon and Charles Mason. This survey culminated in the border along the southern edge of Pennsylvania, now known as the Mason-Dixon Line. There has been little to report in the way of new information about the Mason-Dixon Survey—that is, until recently, when the exact location of the first survey point was re-established. Research involving the original 1700s property deeds, insurance surveys, journal entries by Charles Mason, and City of Philadelphia Commissioners Reports, along with modern re-surveying of the area by professional surveyors, mathematical calculations by these same surveyors, and global positioning satellite (GPS) technology, combined to allow the recovery of the first survey point calculated by Mason and Dixon. It was from this point that they proceeded to establish the Mason-Dixon Survey.

THE YEAR 2013 MARKED the 250th anniversary of the 1763 start to the iconic land survey by Jeremiah Dixon and Charles Mason. This survey culminated in the border along the southern edge of Pennsylvania, now known as the Mason-Dixon Line. While there has been an occasional rekindling of interest in the Mason and Dixon Line, exemplified by Edwin Danson's book *Drawing the Line: How Mason and Dixon Surveyed the Most Famous Border in America,* Thomas Pynchon's postmodernist novel *Mason and Dixon*, Mark Knopfler's popular song "Sailing to Philadelphia," and, most recently, Sally Walker's *Boundaries: How the Mason-Dixon Line Settled a Family Feud and Divided a Nation*, there has been little to report in the way of new information about the Mason-Dixon Survey—that is, until recently, when the exact location of the first survey point was re-established.[1]

[1] Edwin Danson, *Drawing the Line: How Mason and Dixon Surveyed the Most Famous Border in America* (New York, 2001); Thomas Pynchon, *Mason and Dixon* (New York, 1997); Sally Walker,

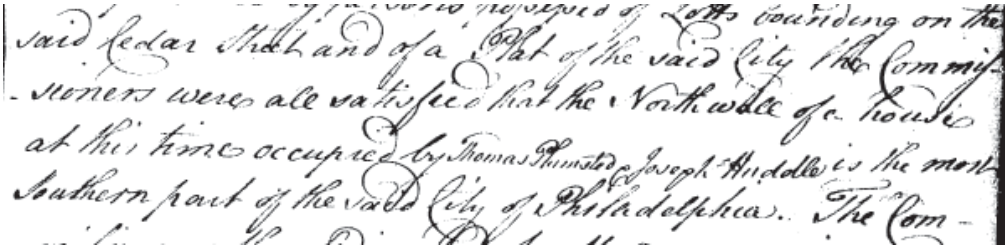


Fig. 1. Description from the city commissioners' report of the north wall of the Plumstead-Huddle house at the southernmost point in Philadelphia. Dec. 3, 1763, County Commissioners Minutes, 1718–1766, RG1-1.1, Philadelphia City Archives and Records, photo by J. Black. Courtesy of the Philadelphia City Archives and Records.

Historical Context

November 1763 offered a gray and chilly welcome to Charles Mason and Jeremiah Dixon, representatives of the British Royal Society, when they disembarked at the seaport of Philadelphia.[2] These highly skilled surveyors would face nearly five years of working and sleeping in the elements as they traversed farmland and woodland westward from Newcastle, Delaware, in what would become the longest, straightest east-west line surveyed in the colonies. Their charge, given to them by King George II of England, was to establish a border to settle the long-running land dispute between two respected families: the Calverts and the Penns.

In preparation for Mason and Dixon's survey activities, the commissioners of the city of Philadelphia officially determined the southernmost point of Philadelphia, as this location would become the initial survey point and basis for establishing the border between the land governed by the descendants of Lord Baltimore and of William Penn. According to the commissioners' documents, several of the councilmen subsequently walked together to the southern border of the city to legally establish the southernmost point. They agreed that the north face of a wall at the home of Thomas Plumsted and Joseph Huddle would satisfy the requirements of the southernmost point of Philadelphia (Fig. 1). The house was located in neighboring Southwark, an area filled with wharves, piers, warehouses, and seafaring trades. As the front wall abutted the street,

Boundaries: How the Mason-Dixon Line Settled a Family Feud and Divided a Nation (Somerville, MA, 2014); Mark Knopfler, "Sailing to Philadelphia," on *Sailing to Philadelphia*, Warner Brothers Records, 2000.

[2] Danson, *Drawing the Line*, 2.

Fig. 2. 1762 Clarkson-Biddle map, section of neighborhood of the southernmost point in Philadelphia. Print Department, flat 2 x 3, Philadelphia, 1762 [14M], Library Company of Philadelphia. Courtesy of the Library Company of Philadelphia.

serving as the border of Philadelphia, the north wall of the house lay on the city border.[3]

Mason and Dixon went on to survey the eventual borders between what are now the states of Delaware, Maryland, and West Virginia to the south and Pennsylvania to the north. The survey would have significant historical, political, and technological impact. Ironically, over the intervening 250 years, the exact location of the front wall of the Plumsted-Huddle house was lost. In a contemporary context, the political consequences of the border can be understood without reference to the initial survey point, but an appreciation of Mason and Dixon's technological achievement cannot be fully understood without knowing this exact point.

[3] December 3, 1763, County Commissioners Minutes, 1718–1766, RG1-1.1, Philadelphia City Archives and Records.

When William Penn accepted Thomas Holme's plan for the city of Philadelphia, the layout reflected a grid of generally north-south and east-west streets, with several square green commons throughout the city. The streets were named for the trees that were found there at the time of settlement.[4] The southernmost street was named Cedar Street, later to be called South Street, the southern border between the city of Philadelphia and the neighboring town of Southwark. As the street angles somewhat southward as one travels east along it, the southernmost point of the city should be where the street meets the Delaware River at the southeast corner of the city.

Ed Danson, a highly experienced surveyor from England, used Mason's journal information to re-create the calculations for the coordinates of the first survey point and placed this point at what is now the intersection of Second and South Streets.[5] This may seem like an obvious error at first, as it is not currently close to the river, but over the centuries the river has changed its course and been dredged several times to make it deeper for seagoing vessels. Dredging forced the river to recede significantly and therefore extended the southernmost point of Philadelphia. Even so, the Clarkson-Biddle map (1762) clearly shows that the banks of the river were several blocks east of Second and South Streets when Mason and Dixon embarked on their survey (Fig. 2).

Physical evidence, not only of the banks of the river, but also of the original streets and structures, is no longer visible. No historic structures remain in the immediate area of the Plumsted-Huddle house, as even traces were eradicated during the construction of Interstate 95. In the interests of historical accuracy and to better frame Mason and Dixon's accomplishments, researchers have undertaken a contemporary effort to determine where the southernmost point of Philadelphia lay in 1763.

Mason wrote in his journal that he set up a tent and observatory near the southernmost point and left us with a detailed map of the observatory's location in relation to this point. If these coordinates were known exactly, researchers could re-create calculations from Mason's journal notes to determine the location of another observatory, built near Independence Hall between Fifth and Sixth Streets and along Chestnut Street. Mason's journal also notes that the builders laid a substantial wood foundation to support the surveying instruments and buffer them from the vibrations

[4] John F. Watson, *Annals of Philadelphia, and Pennsylvania, in the Olden Time* (Philadelphia, 1857, 1900).

[5] Charles Mason and Jeremiah Dixon Journal, 1763–1768, National Archives, Washington, DC, Record Group 59, General Records of the Department of State.

and influences of the city. This foundation likely remains hidden within the grounds of Independence Hall, waiting to be found, potentially with noninvasive underground radar.

The political importance of the Mason-Dixon Line is well known. The line represented not only a resolution to a family feud between the Penns and Calverts but also, later, a symbolic division of a nation between the slave South and the free North, whose disagreements came to a head in the Civil War of 1861–65. Sally Walker captured this aspect of the line well in the title of her 2014 book, *Boundaries: How the Mason-Dixon Line Settled a Family Feud and Divided a Nation*.

The border dispute involving William Penn, Cecilius Calvert (Lord Baltimore), and their scions began in the reign of Charles II and was not settled until approximately eighty years later. At one level, the politics of the feud involved conflicting land grants. For Penn, it meant access to the port of Philadelphia (latitude 39°56′ N), eventually defined as south of the 40° boundary granted to Calvert. At another level, both families wanted to maximize revenues from taxation of residents within the area of conflict. Both the Calvert and Penn families demanded these revenues, but neither was able to claim or convey clear title (Fig. 3).[6] When one party sent its tax collectors into the disputed territory, the other party sent representatives to deter them. Both sides were frustrated by the inability to collect taxes from what each considered its own property. These tax collection skirmishes threatened to escalate in intensity. Because different monarchs had granted land to each family, and because the boundaries of these grants were not clearly defined, some of the responsibility to resolve the conflict lay with the crown.

Cresap's War (1730) was a relatively small, but violent, incident that resulted from this conflict. In one version of the event, Thomas Cresap, a ferry boat operator, was attacked on his boat and nearly drowned by two Pennsylvanians. The attackers carried off Cresap's workman, possibly due to debts the workman owed in the Lancaster region. Cresap had difficulty bringing his case to court, as the Pennsylvania magistrate claimed that Cresap was from Maryland. Further, Cresap felt that he could expect no justice in the Pennsylvania court. These events anticipated the next eight years of violence and prompted the crown to act.[7]

[6] Alan Tully, *William Penn's Legacy* (Baltimore, 1977), 6–12.

[7] Patrick Spero, "The Conojocular War: The Politics of Colonial Competition, 1732–1737," *Pennsylvania Magazine of History and Biography* 136 (2012): 365–403.

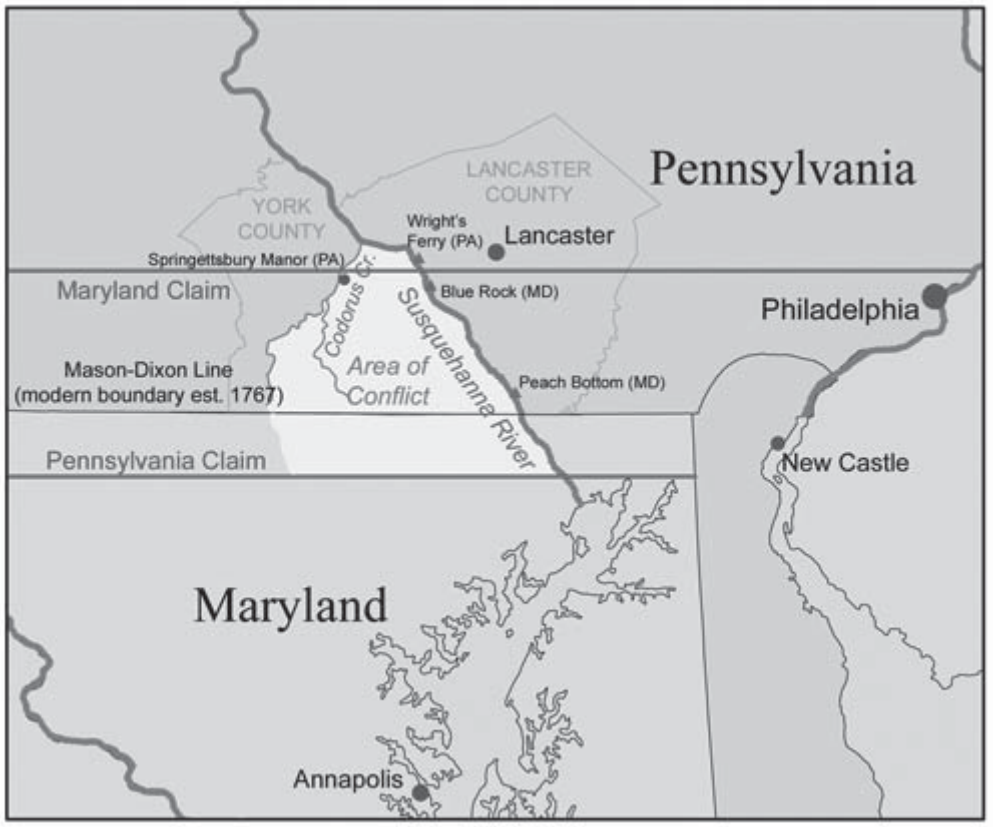


Fig. 3. Map illustrating area of conflict in Cresap's War. Kmusser, Wikimedia Commons, last modified September 11, 2007, https://commons.wikimedia.org/wiki/File:Cresapwarmap.png.

At times, the Calverts claimed land up to the fortieth parallel, including Philadelphia. Penn's understanding of his grant placed the border in the upper part of the Chesapeake Bay (Fig. 3). Impatient to resolve the longstanding feud between the two families, King George II brokered an agreement, signed by grandsons of Calvert and Penn. As part of the agreement, the Royal Society of England dispatched two expert surveyors to measure and mark the boundary between the lands of Penn and Calvert. The royal astronomer, James Bradley, recommended his assistant, astronomer Charles Mason, and a skilled surveyor, Jeremiah Dixon.

Both accomplished mathematicians, Mason and Dixon had recently completed a critical task for the seafaring empire of Great Britain: the measurement of the transit of Venus (the passage of the planet Venus across the face of the Sun as seen from Earth) in Cape Town, South Africa. The transit of Venus had not taken place in over one hundred years, and

improvements in astronomical and time measurement made the event one of unprecedented importance. By measuring the difference in angles of solar parallax from different points on the earth, Mason and Dixon more accurately determined the distance to the sun. Of greater strategic importance, this discovery improved geodesy, the understanding of the form, shape, and size of the earth, consequently improving the accuracy of global navigation and location coordinates.[8]

Mason and Dixon were charged with determining a latitude measurement at the southernmost point of the city of Philadelphia. From that point, they were to proceed west thirty to thirty-five miles to avoid a bend in the Delaware River, then south fifteen miles before starting to survey the actual boundary.[9] This would become the border between Pennsylvania and, eventually, the states of Maryland, Delaware, and West Virginia.

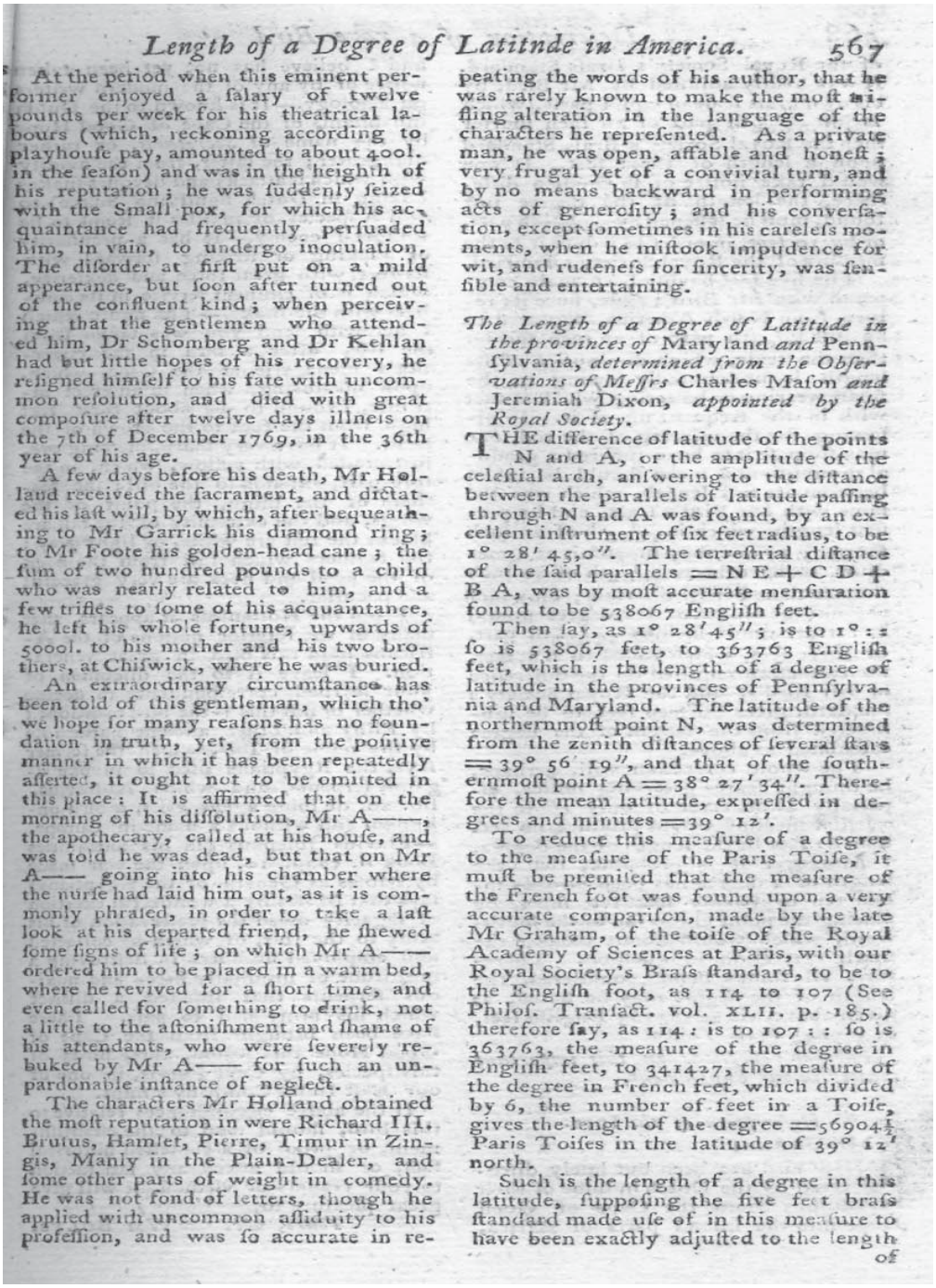
Mason and Dixon's survey, while important politically, was equally significant as a technological accomplishment.[10] Not only did it involve new techniques and equipment, but it also required meticulous attention to detail. For example, the surveyors took great care to ensure that the three-foot-long precision standard brass bar used for measurement remained within a tolerance of one thousandth of an inch. Mason and Dixon considered temperature effects on the expansion and contraction of the brass bar and compensated for these effects in their calculations. If they had assumed, as earlier surveyors had, that the bar was fixed in length, the southern boundary of Pennsylvania would have been measured almost a quarter of a mile longer in the summer than in the winter. In addition, they used a new zenith sector, recently perfected by English instrument maker John Bird. The zenith sector was accurate to two seconds of an arc (0.056 percent of a degree). Also included was a mariners' sextant, one of the earliest instruments fitted with a horizontal bubble level. By using technology similar to a modified clock pendulum, Mason and Dixon were able to observe how topographical features such as the Appalachian Mountains exerted gravitational influences on their measurements. This combination of meticulous observation, advanced instrumentation, and computational correction had no precedent in boundary surveys.[11]

[8] Danson, *Drawing the Line*, 47–59.

[9] Charles Mason to Thomas Penn, Dec. 14, 1763, in ibid., 85.

[10] Ibid., 204.

[11] Ibid. A reassessment by surveyor Todd Babcock of the markers on the Mason-Dixon Line on March 31, 2011, using GPS technology, testifies to the meticulous efforts of Mason and Dixon but also shows that the greatest inaccuracies of marker placement—the largest being a 900′ deviation from



Length of a Degree of Latitnde in America. 567

At the period when this eminent performer enjoyed a ſalary of twelve pounds per week for his theatrical labours (which, reckoning according to playhouſe pay, amounted to about 400l. in the ſeaſon) and was in the heighth of his reputation; he was ſuddenly ſeized with the Small pox, for which his acquaintance had frequently perſuaded him, in vain, to undergo inoculation. The diſorder at firſt put on a mild appearance, but ſoon after turned out of the confluent kind; when perceiving that the gentlemen who attended him, Dr Schomberg and Dr Kehlan had but little hopes of his recovery, he reſigned himſelf to his fate with uncommon reſolution, and died with great compoſure after twelve days illneis on the 7th of December 1769, in the 36th year of his age.

A few days before his death, Mr Holland received the ſacrament, and dictated his laſt will, by which, after bequeathing to Mr Garrick his diamond ring; to Mr Foote his golden-head cane; the ſum of two hundred pounds to a child who was nearly related to him, and a few trifles to ſome of his acquaintance, he left his whole fortune, upwards of 5000l. to his mother and his two brothers, at Chiſwick, where he was buried.

An extraordinary circumſtance has been told of this gentleman, which tho' we hope for many reaſons has no foundation in truth, yet, from the poſitive manner in which it has been repeatedly aſſerted, it ought not to be omitted in this place: It is affirmed that on the morning of his diſſolution, Mr A——, the apothecary, called at his houſe, and was told he was dead, but that on Mr A—— going into his chamber where the nurſe had laid him out, as it is commonly phraſed, in order to take a laſt look at his departed friend, he ſhewed ſome ſigns of life; on which Mr A—— ordered him to be placed in a warm bed, where he revived for a ſhort time, and even called for ſomething to drink, not a little to the aſtoniſhment and ſhame of his attendants, who were ſeverely rebuked by Mr A—— for ſuch an unpardonable inſtance of neglect.

The characters Mr Holland obtained the moſt reputation in were Richard III. Brutus, Hamlet, Pierre, Timur in Zingis, Manly in the Plain-Dealer, and ſome other parts of weight in comedy. He was not fond of letters, though he applied with uncommon aſſiduity to his profeſſion, and was ſo accurate in repeating the words of his author, that he was rarely known to make the moſt trifling alteration in the language of the characters he repreſented. As a private man, he was open, affable and honeſt; very frugal yet of a convivial turn, and by no means backward in performing acts of generoſity; and his converſation, except ſometimes in his careleſs moments, when he miſtook impudence for wit, and rudeneſs for ſincerity, was ſenſible and entertaining.

The Length of a Degree of Latitude in the provinces of Maryland *and* Pennſylvania, *determined from the Obſervations of Meſſrs* Charles Maſon *and* Jeremiah Dixon, *appointed by the Royal Society.*

THE difference of latitude of the points N and A, or the amplitude of the celeſtial arch, anſwering to the diſtance between the parallels of latitude paſſing through N and A was found, by an excellent inſtrument of ſix feet radius, to be 1° 28′ 45,0″. The terreſtrial diſtance of the ſaid parallels = N E + C D + B A, was by moſt accurate menſuration found to be 538067 Engliſh feet.

Then ſay, as 1° 28′ 45″ 5 is to 1° : : ſo is 538067 feet, to 363763 Engliſh feet, which is the length of a degree of latitude in the provinces of Pennſylvania and Maryland. The latitude of the northernmoſt point N, was determined from the zenith diſtances of ſeveral ſtars = 39° 56′ 19″, and that of the ſouthernmoſt point A = 38° 27′ 34″. Therefore the mean latitude, expreſſed in degrees and minutes = 39° 12′.

To reduce this meaſure of a degree to the meaſure of the Paris Toiſe, it muſt be premiſed that the meaſure of the French foot was found upon a very accurate compariſon, made by the late Mr Graham, of the toiſe of the Royal Academy of Sciences at Paris, with our Royal Society's Braſs ſtandard, to be to the Engliſh foot, as 114 to 107 (See Philoſ. Tranſact. vol. XLII. p. 185.) therefore ſay, as 114 : is to 107 : : ſo is 363763, the meaſure of the degree in Engliſh feet, to 341427, the meaſure of the degree in French feet, which divided by 6, the number of feet in a Toiſe, gives the length of the degree = 56904½ Paris Toiſes in the latitude of 39° 12′ north.

Such is the length of a degree in this latitude, ſuppoſing the five feet braſs ſtandard made uſe of in this meaſure to have been exactly adjuſted to the length of

Fig. 4A. First page of "The Length of a Degree of Latitude in the Provinces of Maryland and Pennsylvania, Determined from the Observations of Messrs Charles Mason and Jeremiah Dixon, Appointed by the Royal Society," *Gentleman's Magazine*, Dec. 1769, 567, private collection.

Fig. 4B. "A Map of that Part of America where a Degree of Latitude was Measured for the Royal Society: By Cha. Mason & Jere. Dixon," *Gentleman's Magazine*, Dec. 1769, private collection.

Using astronomical observations, gravitational considerations, and standards of measure adjusted for fluctuation of temperature, Mason and Dixon made the first scientific determination of a degree of latitude in the colonies. Even at the time, members of the general public recognized this feat as a significant technological achievement (Figs. 4A and 4B).[12] The survey included the determination of a tangent to the only circular curved arc in the West (west of England) that serves as a radius border (a twelve-mile radius at the northern part of Newcastle, Delaware)—and then the creation of the longest east-west line in the colonies, with an average latitude measurement of 39°43′20″ N.[13] At the time, it was the most precise, ambitious, and largest geodetic measurement ever made. It set a precedent that became the standard for a nation in the making.

The survey conditions were not without considerable risk. Mason and Dixon began their work in the aftermath of the French and Indian War. Savage retaliations against innocent Indians, including those committed by the "Paxton Boys," had reignited tensions in the western part of Pennsylvania. The threat of violence ultimately stopped Mason and Dixon from completing the survey along the full length of Pennsylvania; their journey ended 233 miles from their starting point.

Recovering the Past

It is ironic that the starting point and coordinates for what was a transformative approach to surveying and boundary delineation has been, if not entirely lost, certainly long misidentified. While Philadelphia city commissioners' documentation recorded the north wall of the Plumsted-Huddle house as the southernmost point in Philadelphia, the exact location of the house was lost.[14] Many obstacles prevented finding it. Two studies, published in 1962 and 2001, improperly identified the Plumsted-Huddle house as having been located at, respectively, Second and Cedar (now South) Streets and Penn and Cedar Streets.[15] An address of 30 Cedar

latitude—were probably associated with the difficulties in compensating for gravitational variation. Todd Babcock, personal communication with author, 2013.

[12] "The Length of a Degree of Latitude in the provinces of Maryland and Pennsylvania, determined from the Observations of Messrs. Charles Mason and Jeremiah Dixon, appointed by the Royal Society," *Gentleman's Magazine*, Dec. 1769, 567, private collection.

[13] Danson, *Drawing the Line*, 204.

[14] City of Philadelphia Commissioners Meeting Minutes, Dec. 3, 1763.

[15] Hubertis M. Cummings, *The Mason Dixon Line: Story for a Bicentenary, 1763–1963* (Harrisburg, PA, 1962), 12; Danson, *Drawing the Line*, 84.

Fig. 5. Image of 30 Cedar Street House. "S.W. corner Penn and South Sts., Phila.," New York Public Library Digital Collections, accessed December 7, 2015, http://digitalcollections.nypl.org/items/510d47da-fed3-a3d9-e040-e00a18064a99.

Street was entered into accounts relating to Mason and Dixon's survey at some unknown time, along with a putative sketch of the Plumsted-Huddle house (Fig. 5). Thirty Cedar Street was not considered to be the southernmost point of Philadelphia, as Cedar Street extended slightly further eastward and southward among the wharves along the Delaware River.[16] An undated sketch of the house is not representative of a mid-1700s home, which likely would have been two to three stories tall, not four stories tall with a roof deck. Furthermore, maps of the era indicate that the southern-

[16] South Street slants slightly to the south as one travels east toward the Delaware River. Logically, the southernmost part of the city would be found near the intersection of South Street and the original banks of the Delaware.

most occupied portion of Philadelphia was more likely located closer to Penn or Water Streets.[17]

Due to the difficulties in finding the original house's location, Todd Babcock, surveyor and president of the Mason and Dixon Line Preservation Partnership, determined that the only way to find the first survey point was to research property deeds in the Philadelphia Archives and track down house ownership records for the time in question.[18] A search of this sort meant reviewing deed books from the 1600s and 1700s, then finding the specific deed on microfilm reels. Todd approached the authors, Barry Arkles and Janine Black, with the problem. Black formed a team of Pennsylvania State University students, including Matt McDermott, Indiah Fortune, and Amanda Veloz, to find the original deed to the Plumsted-Huddle house. Arkles, having spent the earliest part of his life at Second Street and Elfreth's Alley, was familiar with the history of Philadelphia and provided a perspective on the urban terrain before the construction of I-95 and the 1950s and '60s urban renewal of the Society Hill area.

There were a number of reasons that a deed for the dwelling was difficult to identify. The Huddle and Plumsted families owned numerous properties in the area at the time. Apart from several changes in street names, in 1856 the official house numbering system for Philadelphia also changed. House numbers initially followed a chronological system, referring to when a house was built, and transitioned to a system that started at the eastern end of the street and systematically numbered the houses westward along each city block.[19] To add to the confusion, the Delaware River banks changed their locations during several dredging operations. Between 1959 and 1979, the waterfront area of Philadelphia, including the historic starting point of the survey, was razed to clear the way for the construction of Interstate 95.

[17] Clarkson-Biddle map, Print Department, flat 2 x 3, Philadelphia, 1762 [14M], Library Company of Philadelphia.

[18] Todd shared this idea with Torben Jenk, who independently confirmed the same conclusions our team reached.

[19] Following the 1856 changes to the Philadelphia street numbering system, each block that was at least 350 feet long had numbers between 0 and 100. From the Delaware River to Front Street was numbered 0–100, from Front to Second Street was numbered 100–199, etc. The currently speculated 30 Cedar Street location of the Plumsted-Huddle house, or the southernmost point of Philadelphia, fits with the more recent numbering system. There is no conversion table for the older addresses to the newer addresses. This information still exists but is not tabulated.

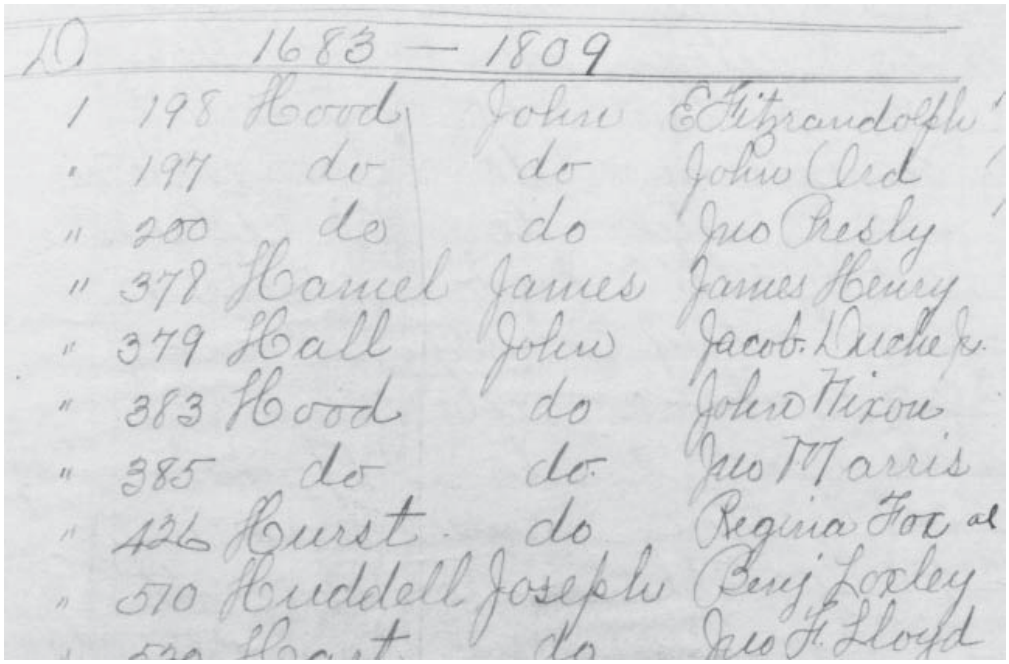


Fig. 6. Property Purchase Record from the 1683–1809 Deed Transfer Book. This record references the transfer of property ownership to Joseph Huddell from Benjamin Loxley. The surprise with this record that made it difficult to find was that the apparent page number was easily misread as page 570, but the actual deed record was found on page 510. Indiah Fortune, a Penn State student, was able to find the desired deed by paging through the entire deed book, thus resolving the issue. Microfiche, Roll 37, Deed Book D–1, 1683–1809, Philadelphia City Archives and Records, photo by J. Black. Courtesy of the Philadelphia City Archives and Records.

Student researchers McDermott, Fortune, and Veloz identified all of the properties owned by the Huddle and Plumsted families using the Philadelphia Archives' collection of deed books dating back to the 1600s.[20] All spellings of each family's name were included in the search. The students identified a deed for the southernmost property and were able to eliminate from consideration all other Huddle and Plumsted properties (Fig. 6). The house identified was located on the southwest corner at the intersection of Cedar and Water Streets. A 1763 insurance survey verified that the property was owned by Joseph Huddell and occupied by Thomas Plumstet [*sic*] (Fig. 7).[21]

[20] Ron Givens, "Penn State Students Solve Mason-Dixon Line Puzzle," *American History*, Aug. 2011, 8.

[21] An inquiry to the Contributionship, the insurance company founded by Benjamin Franklin in the 1700s and still in business today, revealed an insurance survey of the property was made on

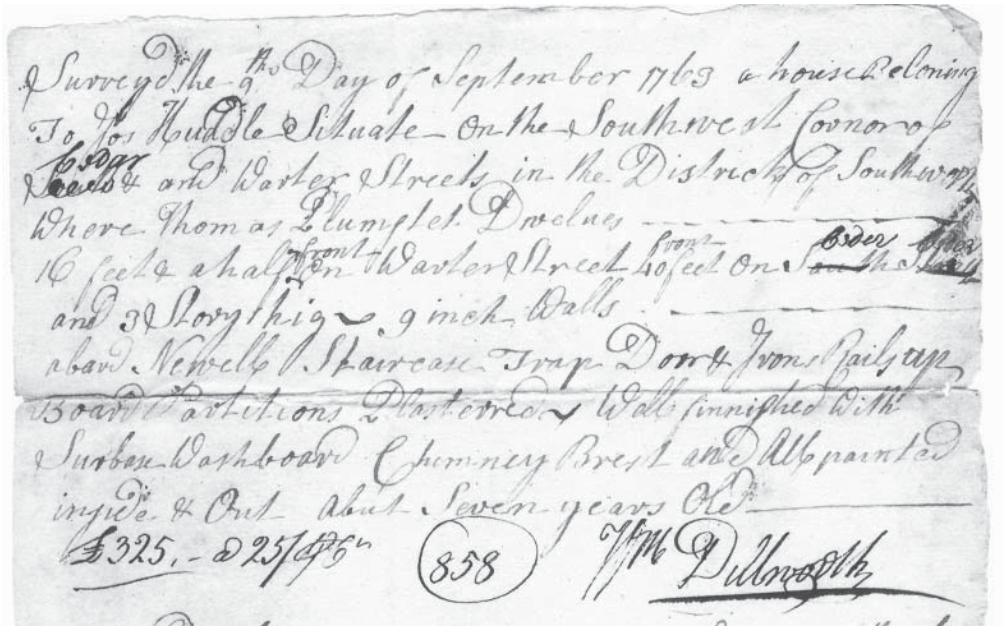


Fig.7. Contributionship Insurance Survey of the Huddle Plumstet house, Sept. 9, 1763, The Philadelphia Contributionship. Courtesy of The Philadelphia Contributionship.

With the location of the building determined, surveyors James Shomper, from the City of Philadelphia, and Todd Babcock, both members of the Surveyors Historical Society and the Mason and Dixon Line Preservation Partnership, then used modern surveying techniques to correlate the building's northeast corner to GPS coordinates. Those coordinates in decimal degrees are latitude 39.940785401, longitude 75.143047349, or, in degrees-minutes-seconds, N 39°56′26.827″, W 75°08′34.970″. This location, although unfortunately under the northbound lane of I-95, is still visible looking south from the South Street pedestrian bridge (Figs. 8A and 8B).[22]

September 9, 1763. The survey described the three-story house as "Belonging to Jos. Huddle and Situated on the Southwest Corner of Cedar and Water Streets in the District of Southwark Where Thomas Plumstet Dwells" with a 16½-foot frontage on Water Street and a 40-foot frontage along Cedar (South) Street. Contributorship Insurance Survey of the Huddle Plumstet house, Sept. 9, 1763, The Philadelphia Contributorship. Further east and south of this point appeared to be a church's wharf with a building, likely a warehouse, on the pier. See the 1762 Clarkson-Biddle map at the Library Company of Philadelphia.

[22] In 1861, a newspaper report cited the Huddle and Plumsted home as having a latitude of 39°56′29″, or 39.941389. This is approximately 220 feet north of the latitude reported herein and would place the north wall of the property north of Cedar (South) Street. M. McDermott, personal communication with author, Jan. 2010.

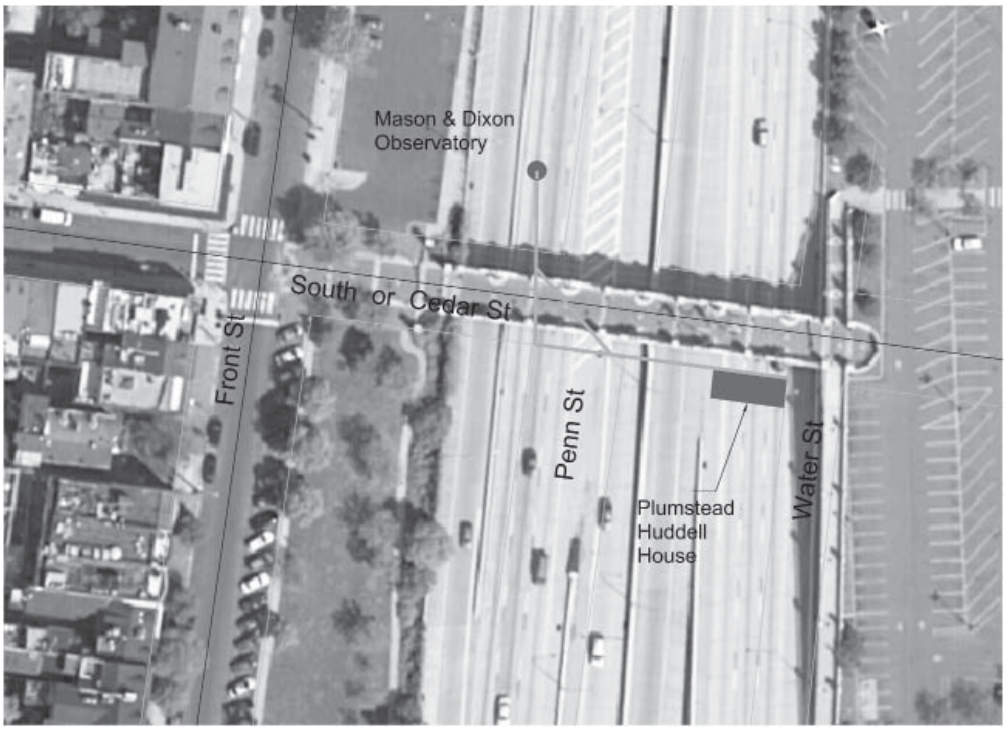


Fig. 8A. Satellite view over South Street Pedestrian Bridge showing initial point of the Mason and Dixon survey, with overlay of calculated location. Courtesy of James Shomper.

Mason and Dixon at 250 Years: 2014 Retrospective and Activities

Jeremiah Dixon, the more practical of the two men, continued as a successful surveyor, while Charles Mason, the more brilliant mathematician, had difficulty deriving income from his skills. He died penniless in Philadelphia. Benjamin Franklin, who appreciated Mason's work on both the transit of Venus and the Mason-Dixon Line, paid for his burial at Christ Church's cemetery but did not pay for the marking of the gravesite. John Hopkins, historian and burial ground coordinator for Christ Church, determined that Mason and his wife were buried within the cemetery located at Fifth and Arch Streets rather than the cemetery adjacent to the church, where the graves are fewer and better identified. Although the original grave site has been lost, Hopkins designated a symbolic burial site within the cemetery at Fifth and Arch Streets.

Anticipation of the 250th anniversary of the Maxon-Dixon Survey prompted new investigations of the survey and the surveyors. With the exact location of the survey's starting point identified and the GPS coordi-

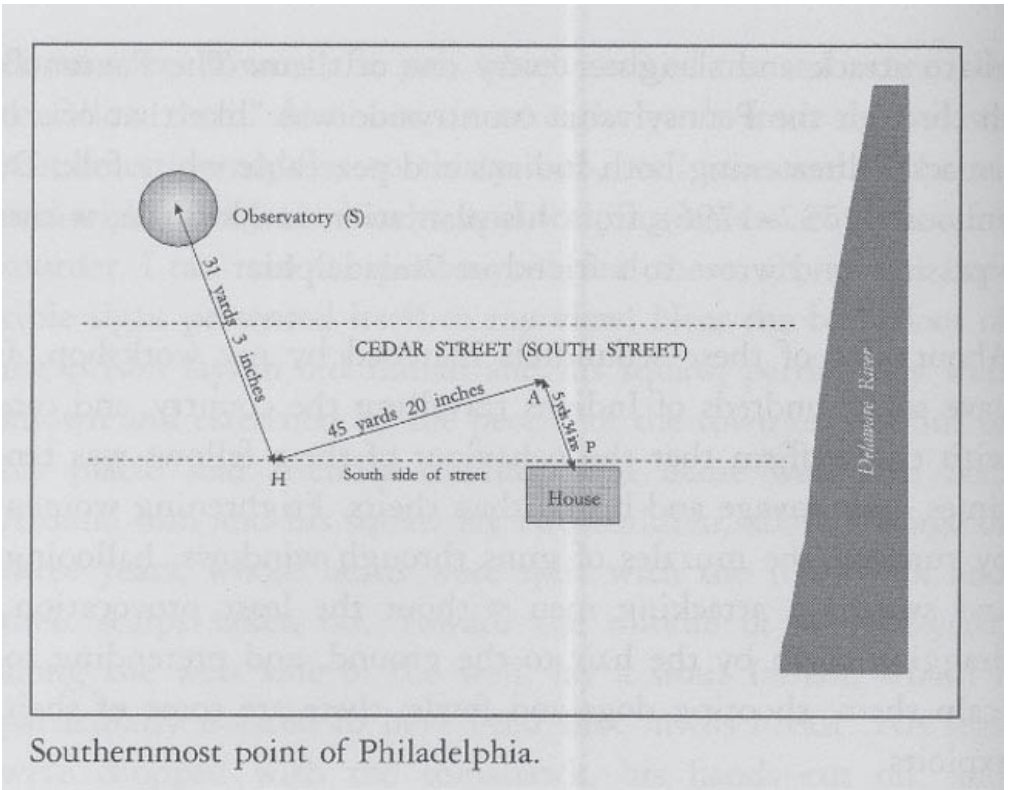


Fig. 8B. Edwin Danson's drawing of the observatory in relation to the southernmost point of Philadelphia as shown in Mason and Dixon's journals. Edwin Danson, *Drawing the Line: How Mason and Dixon Surveyed the Most Famous Border in America* (New York, 2001), 92. Figure courtesy of John Wiley and Sons, Copyright 2001.

nates determined, an invigorated celebration took place. The Pennsylvania Historical and Museum Commission accepted Black and Arkles's recommendation to erect a memorial plaque commemorating the surveyors' achievements (Fig. 9).[23] The historical plaque, located at the approach to the South Street pedestrian bridge, was unveiled on August 30, 2013. In addition, the approximate final resting place of Charles Mason was marked with an original stone marker from the Mason-Dixon Line, presented by Todd Babcock on behalf of the Mason and Dixon Line Preservation Partnership, in the cemetery of Christ Church, Philadelphia, on August

[23] The historical marker application was accepted by the Commonwealth of Pennsylvania (Pennsylvania Historical and Museum Commission) on March 18, 2011. The original submission date was December 26, 2009. For more information on this historic marker, see "Mason-Dixon Survey," Pennsylvania Historical and Museum Commission, http://search.pahistoricalmarkers.com.

Fig. 9. Penn State University student researcher Indiah Fortune beside the Mason-Dixon Survey historical marker approved by the Pennsylvania Museum and Historical Commission. Annual Surveyors Historical Society Rendezvous, August 30, 2013, photo by J. Black.

Fig. 10. Site of cemetery marker for Charles Mason. Actors in colonial garb are posing by actual 1766 Maryland-Pennsylvania border boundary stone used to memorialize Charles Mason, who was buried in the cemetery of Christ Church, Philadelphia, in an unmarked grave. Annual Surveyors Historical Society Rendezvous, August 31, 2013, photo by J. Black.

31, 2013 (Fig. 10). Both events were coincident with the Surveyors Rendezvous 2013, sponsored by the Surveyors Historical Society and the Mason and Dixon Line Preservation Partnership. Attendees included James Shomper and Richard Leu on behalf of the Surveyors Historical Society, Todd Babcock on behalf of the Mason and Dixon Preservation Partnership, Chas Langelan on behalf of the Maryland Society of Surveyors, William Lewis on behalf of the Pennsylvania Historical and Museum Commission, and Mike Harris on behalf of the South Street Headhouse District. Approximately one hundred members of the Surveyors Historical Society were present at the dedication, along with members of the public. The interest in the event demonstrates that, after 250 years, the Mason-Dixon Line is well known. However, both scholars and members of the public most frequently cite its political importance.

In addressing its technological and physical significance, this report sheds light on one more way in which the Mason-Dixon Line has become part of the fabric of what is now the United States.

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