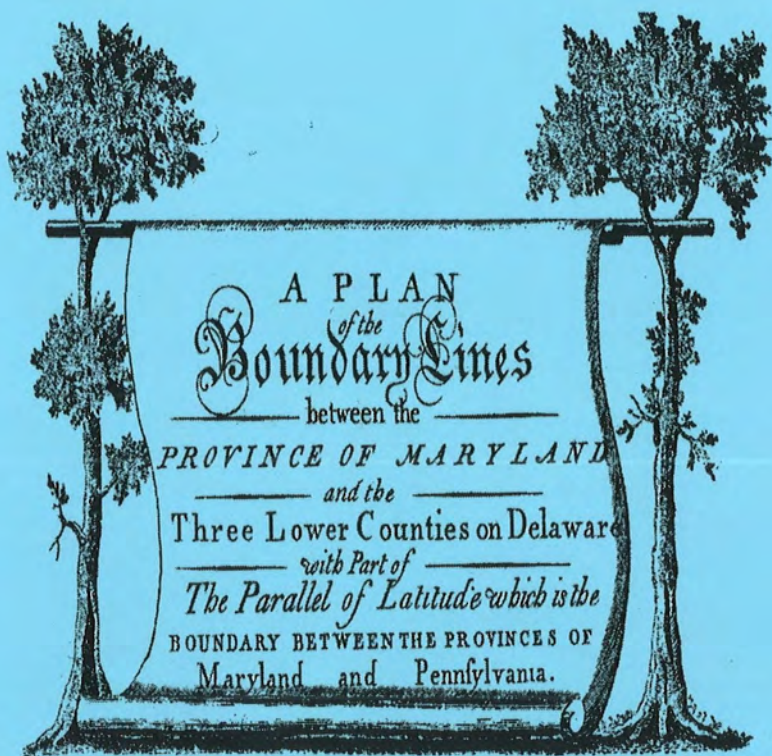




EAST OF THE MASON-DIXON LINE

A History of the Delaware Boundaries



Roger E. Nathan

Delaware Heritage Press

East of the Mason-Dixon Line

A History of the Delaware Boundaries

by: Roger E. Nathan

Copyright © 2000 Delaware Heritage Press

All rights reserved.

No part of this publication may be reproduced for profit without written permission from the Delaware Heritage Commission.

A Delaware Heritage Press Book

First Printing, August 2000

Second Printing, May 2006

ISBN (hardcover edition): 0-924117-16-8

ISBN (ePub edition): 978-0-924117-44-2

Library of Congress Catalog Control Number: 00-133339

Delaware Heritage Commission

Delaware Public Archives

121 Duke of York St. Dover, DE 19901

Carvel State Office Building

820 N. French Street, 4th Floor

Wilmington, DE 19801

FOREWORD

Delaware was the "The First State" to ratify the United States Constitution but possibly is the last state to have its boundaries settled. It took from 1681 to 1934 to settle and mark most of them and still there is a part that remains to be determined. There are many unusual elements of the boundaries including a circular boundary that it shares with three other states. In addition: 1) It is possible to drive from New Jersey to Delaware without crossing water. 2) The western boundary is made up of three parts of the Mason-Dixon Line. 3) Last, and surprisingly, no one in the state lives south of the Mason-Dixon (Pa.-Md.) line, but almost everyone in the state lives east of the Mason-Dixon line (Del.-Md).

The boundaries include the east-west line between Delaware and Maryland (known as the Transpeninsular Line); the north-south line between Delaware and Maryland that includes the Tangent line, the Arc Line, and the North line; the Top of the Wedge line between Delaware and Pennsylvania; the circular line between Delaware and Pennsylvania (that is made up of arcs of two circles); the northern circular line between Delaware and New Jersey that is a continuation of the Delaware-Pennsylvania circular line; the 1934 mean low water mark line between Delaware and New Jersey; the southern circular line between Delaware and New Jersey; and the river and bay lines between Delaware and New Jersey.

There are 179 monuments that mark the boundaries. Some of them (the Transpeninsular Line) were placed by Colonial surveyors in 1751. Many of the monuments were placed by Mason and Dixon in the 1760s. The others were placed by officials of the United States Army in 1849, officials of the United States Coast and Geodetic Survey in 1893, and 1935, and by officials of National Ocean Survey in 1962, 1974 and 1986. Most of the original monuments are still in place. The owners of the properties on which the monuments were placed deserve much of the credit for the protection of the monuments.

About the Author

A number of years ago the Delaware Heritage Commission was fortunate to encounter Roger Nathan. Roger was an avid historian and, though not a Delaware citizen (he lived in Woodstown, N.J.), Roger always "crossed the bridge" to the state of his birth in search of fun and unique history.

A trip to Roger's home and his basement was a feast for the senses for any historian. Roger collected *National Geographic* magazines and various artifacts.

Roger became interested in the Mason-Dixon Line and the story of the Delaware boundaries in the mid 1970s. It was at that time that he began to search for the Mason-Dixon markers and to look for answers to the state's unique boundary questions like "the wedge" and the "12 mile arc" -our northern circular boundary.

After a few years of study and research Roger completed a selfguided tour of the Delaware boundaries and had personally located each Mason-Dixon marker. He quickly became an expert of oolitic limestone (from which the markers were quarried), the Penn and Calvert families, and Mason and Dixon themselves.

Mr. Nathan died in October, 2005.

Mr. Nathan was born in Delaware but moved to Southern New Jersey while a toddler. An educator, mathematician, and writer, he held a B.S. from Temple University and an M.A. in Education Administration from Rutgers University. Mr. Nathan's work on the markers began a resurgence in interest concerning the boundaries and the Mason-Dixon Line in Delaware. He worked extensively to identify the positions of the lost and missing markers along the boundary and worked with the Delaware Heritage Commission to bring about support and awareness of the markers to all Delawareans. In April, 2002 Mr. Nathan completed a survey of the North-South boundary and discovered that 10 markers were missing.

On many occasions, the Commission sponsored walking tours of the markers led by Mr. Nathan. Mr. Nathan was the author of a number of other

books.



Roger E. Nathan and friend with Mason Dixon marker #85



A "Crown" Stone

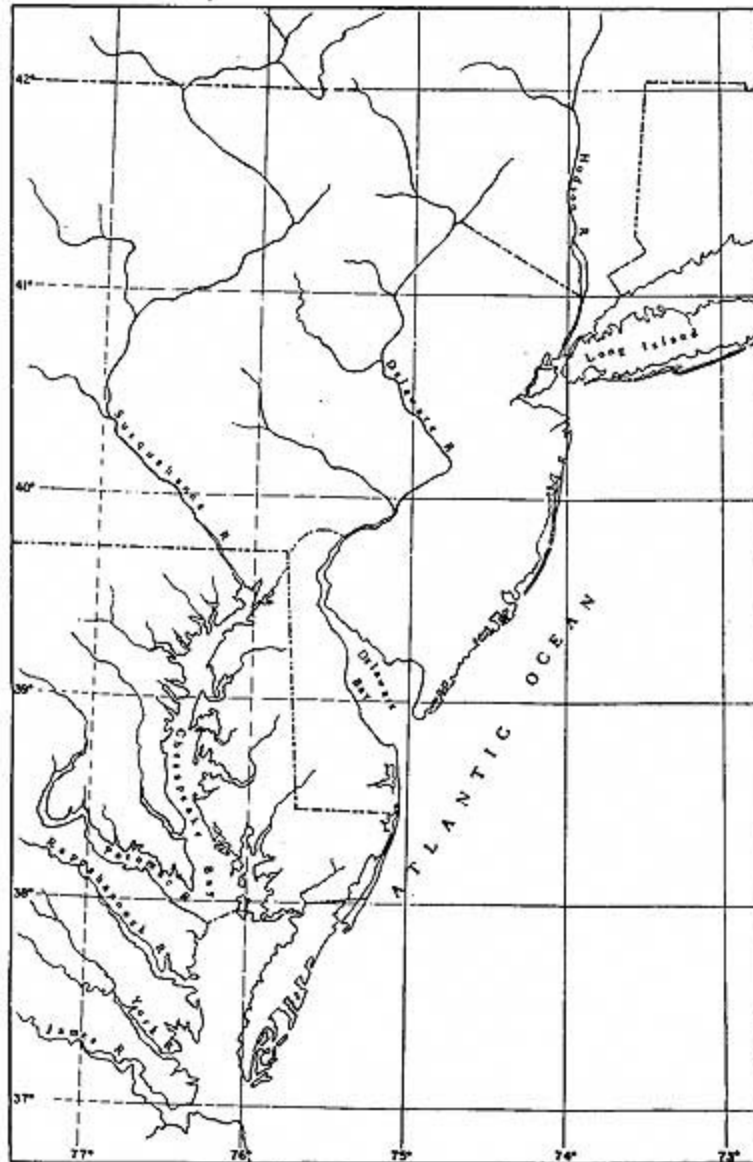


EARLY CLAIMS AND SETTLEMENTS

The English claim to territory in North America was based on the voyages of John Cabot in 1497 and Cabot and his brother in 1498. Based on those claims, James I granted charters for land in the New World to the London Company in 1611 and the Plymouth Company in 1620. The Plymouth Company was made up of men from Plymouth, Bristol, and Exeter. Their charter included the land from 45 degrees North Latitude to 38 degrees North Latitude. The London Company was made up of men from London. Their charter included the land from 34 degrees North Latitude to 41 degrees North Latitude. This created an overlap that included what is now all of Maryland and half of New Jersey and Pennsylvania. The charters stated that neither company was to settle within 100 miles of each other.

In 1621 George Calvert, a member of the Virginia Company, sent Captain Edward Wynne to Newfoundland to establish a new settlement. He later obtained a charter for the North American colony under the name Avalon. He visited the colony in 1627 and later returned with his family, but the climate proved too severe for his family and other settlers and they returned to England. Calvert then petitioned King Charles I for a land grant in the area of the Chesapeake Bay and then with his family sailed for Jamestown. But, because he was Catholic, he was forbidden to settle in Virginia. He returned to England to plead for the Chesapeake Bay charter.

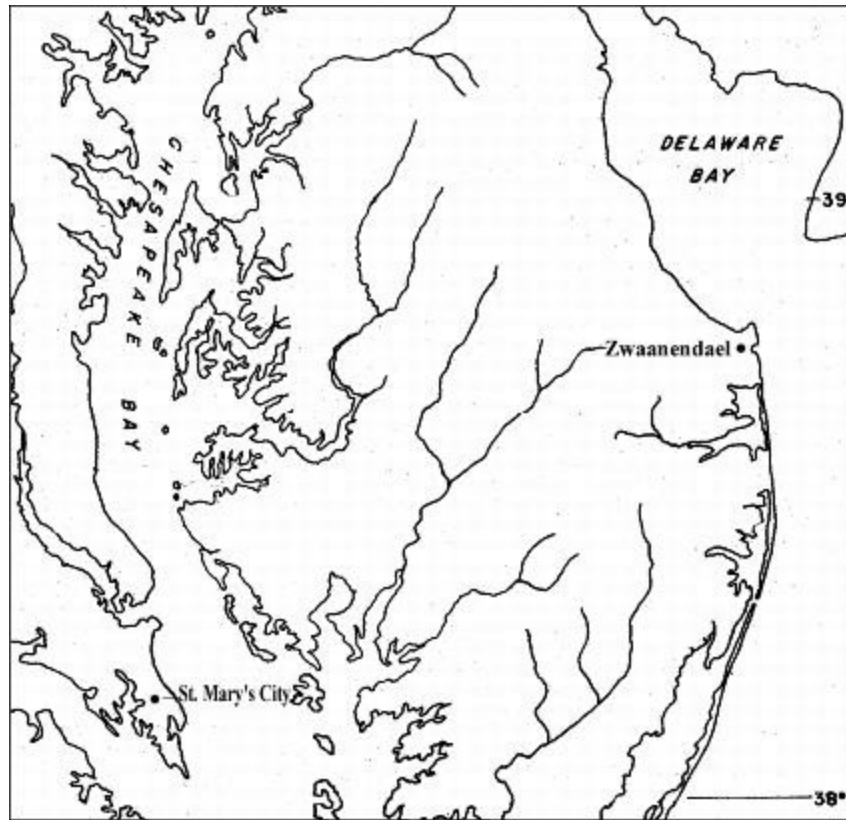
George Calvert served in the House of Commons from 1609 to 1611. He was knighted in 1617 and became secretary of state in 1619. He then served in the House of Commons from 1620. He had the task of communicating the policies of King James to the Members of the House of Commons. In 1625, he declared himself a Roman Catholic and gave up his office. He was then created Baron Baltimore in the Irish peerage and received a grant of large estates in Ireland.



General Area of the Grants Concerning the Present State of Delaware. The dashed lines represent the present boundaries.

Bayliff, William H., *The Maryland-Pennsylvania and The Maryland-Delaware Boundaries* (Maryland, Natural Resources, 1959), 3.

In 1629, agents Samuel Godyn and Samuel Blommaert, of a Patroonship of the Dutch West India Company, purchased land from the Indians in what is now the State of Delaware. The first settlement was made on the creek called Hoornkill (in the area of present day Lewes) in 1631 at what the Dutch called Zwaanendael.[1]



Southern Area of the Present Delmarva Peninsula.

Baliff, William H., *The Maryland-Pennsylvania and The Maryland-Delaware Boundaries* (Maryland, Board of Natural Resources, 1959), 17.

The settlement disappeared within a year because the inhabitants and the Indians had a disagreement, and the small group of Dutch settlers was killed. A second Dutch settlement was established in 1632 in the area of Lewes but this was abandoned because attempts at whaling and fishing failed.

On April 15, 1632, the charter requested by Lord Baltimore was approved by Charles I. Ironically, on the same day, Lord Baltimore died so the charter was given to his son, Cecil. The charter received the Royal Seal on June 20, 1632. The colony was named Maryland for the King's wife, Henriette Marie.

The boundaries of the grant were:

- North* — the land which "lieth" under the 40th parallel
- East* — the Delaware Bay and the Atlantic Ocean
- South* — the south bank of the "Potomack" and by a parallel through Watkins Point

West — a meridian through the source of the Potomac

The grant precluded previously cultivated land (*hactenus inculta*).

Calvert, as the proprietor, was given the right to collect taxes, make grants of land, and found churches according to the laws of England. The charter did not forbid the establishment of churches other than Protestant so Calvert allowed the establishment of churches for his co-religionists, the Catholics.

Payment for the grant consisted of "yielding therefore unto us, our heirs and successors, two Indian arrows of those parts, to be delivered to the said Castle of Windsor, every year, on Tuesday in Easter-week; and also the fifth part of all Gold and Silver ore, which shall happen from time to time, to be found within the aforesaid limits."

In October, 1632, Calvert dispatched two ships with 20 gentlemen, mostly Catholics, and some 200 laborers, mostly Protestant. They arrived at the mouth of the Potomac on St. Clement's Island on March 25, 1634. They established the settlement of St. Mary's on the north shore of the Potomac. Calvert did not make settlements on the Atlantic coast. This would later be harmful to his claim to the land along the coast. Another very harmful mistake was that he did not have his northern boundary surveyed.



Great Seal of Maryland, ca. 1648

Fashioned of silver, the Great Seal of 1648 was sent to Maryland by Lord Baltimore to replace the seal lost in Ingle's Rebellion. The reverse shows Lord Baltimore's hereditary coat of arms, incorporating heraldic elements of the Calvert (paternal) and Crossland (maternal) families. The plowman and fisherman supporting the shield probably signify the bounties of Maryland's land and water resources.



Charles I

By Daniel Mytens, 1631 *The National Portrait Gallery, London*

[1] The English took over the area in 1644, dropped the Dutch name and called the area by the Anglicized name of Whorekill and a short time later changed it to Deale. It was later changed to Lewes in honor of the town of Lewes, England.

CONTENDING CLAIMS

Other countries were also interested in making settlements in the New World. In 1638, the Swedes landed at the present site of Wilmington and established Fort Christina. In 1651, Peter Stuyvesant, a Dutchman, purchased land from Christina Creek to Bombay Hook from the Indians. He then built Fort Casimir at Sandy Hook (New Castle.) In 1654, Johan Classon Rising, a new Swedish Governor, captured Fort Casimir and named it Fort Trinity. Stuyvesant recaptured Fort Trinity in 1655 and renamed it Fort Amstel. He captured Fort Christina forcing the Swedes to surrender all of their claims to the Dutch. The Dutch had also purchased the island of Manhattan from the Indians.

In 1652, in England, during the Commonwealth period, the Parliament assumed control of Maryland and suspended the governor. Charles II assumed the throne in 1660 and in 1662 Cecil Calvert was again given control of Maryland.

By 1659 the Dutch had been in undisturbed possession of land along the Delaware River for a long time. In that year Maryland sent Colonel Nathaniel Utie to New Amstel to notify the Dutch that they were in unlawful possession of land within the province of Lord Baltimore. Because of the Dutch presence, Lord Baltimore petitioned for a confirmation of his charter and that was granted by Charles II in 1661.

The Dutch did not leave the Delaware River area and, at the same time, they became aggressive in the valley of Connecticut. Charles II decided to force them from his colonies. On March 12, 1664 he granted to his brother, James, Duke of York, all of the land between the Connecticut River and the Delaware River. The Duke then led forces which captured Fort Amsterdam (Manhattan) on September 8, 1664. The following day Stuyvesant signed a treaty of surrender to a Col. Nichols of the Duke's force. New Amsterdam became New York. The Duke then marched his forces to New Amstel and reduced it to submission. He held the New Amstel territory without the benefit of a title or charter.

The Dutch later recaptured the New York and Delaware territory but, by

1674, the Treaty of Westminster restored the territories to the English. The King confirmed the title to the land he had granted to his brother, Duke of York, in 1664.



Charles II

Attributed to T. Hawker *The National Portrait Gallery, London*

PENN'S CLAIMS

In 1680, William Penn, the founder of Pennsylvania, petitioned Charles II for a tract of land lying north of Maryland. His petition was based on the service his father had performed for the Crown and for the debts the King owed to his father.

Penn's father, Sir William Penn, had served in the English navy during the Commonwealth period. After the Restoration in 1660, he was knighted and appointed a commissioner for the navy. In the Second Dutch War (1665-67) he served as captain of the fleet with the Duke of York who was his friend and patron. Sir William won great renown at the Battle of Lowestoft.

William Penn had become a Quaker over the objections of his father. He wrote many books and pamphlets on his beliefs and spent time in the Tower of London and in three other prisons because of those religious activities. Frustrated in England, Penn turned to America as a place he might institutionalize his political and religious beliefs.

He had been involved in mediating a conflict between two Quakers over the joint ownership of a property in New Jersey, so he was convinced of the virtue of single proprietorship. In his petition he requested and would obtain a charter that named him the supreme governor. In his zeal to obtain the grant, and in later efforts to gain more than what was called for in the grant, he showed evidence of traits not normally associated with Quakers.

Action on the petition for the land lying north of Maryland was held in abeyance until all parties whose rights may have been affected were consulted. This included Lord Baltimore who did not object as long as the Penn grant would be north of the 40th parallel. Consideration was also given to the Duke of York who wanted to keep Penn away from New Castle. The Duke wanted a circle of radius of 20 to 30 miles drawn around New Castle. Penn was able to have the radius reduced to 12 miles. Penn pushed for the 12 mile circle so that his grant would be closer to the Atlantic Ocean.



George Calvert, Lord Baltimore

The grant was made on March 4, 1681. The grant included the land:

" . . . bounded on the East by the Delaware River, from twelve miles distance, Northwarde of New Castle Towne unto the three and fortieth degree of Northern Latitude . . . the said lands to extend Westwards, five degrees in Longitude . . . and the said lands to bee bounded on the North, by the beginning of the three and fortieth degree[2] of Northern Latitude, and on the South, by a circle drawne at twelve miles distance from New Castle Northwards, and Westwards unto the beginning of the fortieth degree of Northern Latitude; and then by a streight line Westwards, to the limit of Longitude menconed . . . "

A look at a map of the area that was granted will quickly show that a twelve-mile circle around New Castle will not intersect with the 40th degree of North latitude. Another problem was the definition of the twelve-mile circle. Was it to be a circle of 12 miles circumference, or a circle drawn around a diameter of 12 miles passing through New Castle, or was it a circle

with a radius of 12 miles with its center in New Castle?

On April 2, in a letter to Lord Baltimore, Charles II announced the granting of Penn's charter and required him to meet with agents of Penn in order to establish the boundaries. In the meetings suspicion and animosity developed between the two parties and attempts to decide how to establish the boundaries failed. The major dispute at that time was how to define the circle around New Castle.



William Penn

Courtesy of the Delaware Public Archives General Collections-Portraits

[2] In those days there was disagreement about the meaning of the word degree. Was it an area of land between two imaginary lines called parallels or was it an imaginary line or parallel itself? Penn argued both ways — for the first definition for his northern boundary and for the second definition for his

southern boundary.

PENN'S DEEDS AND LEASES

William Penn continued to want better access to the ocean so he persuaded the Duke of York to transfer to him the territory which the Duke had taken from the Dutch along the west shore of the Delaware River. On August 21, 1682, the Duke of York leased and granted to Penn all of New Castle and that tract of land within the circle of 12 miles along with that part of the Delaware River and all of its islands within the 12 mile circle for 10,000 years at the cost of five shillings. Three days later, the Duke leased and granted to Penn all of the land below the 12 mile circle as far south as Cape Henlopen.[3] The Privy Council and Lord Baltimore were probably aware of these transfers but the Duke of York was soon to become James II and neither the Privy Council nor Lord Baltimore wanted to debate the issues with the Duke of York and his friend William Penn.

In October 1682, Penn sailed up the Delaware River in the ship *Welcome* and landed at New Castle. There the Duke of York's Commissioners conducted a ceremony in which the actual delivery of the land and river was made to Penn. The ceremony was known as the Livery of Seisin and was part of common law.

Later, Penn landed at Upland (now Chester) and, on December 4, he held his first assembly which was attended by representatives of the Delaware territory. By an Act of Union, the Delaware territory was annexed to the Province of Pennsylvania. On December 23, Penn changed the names of Deale and St. Jones counties to Sussex and Kent respectively. These two counties along with New Castle County became known as the Three Lower Counties of Pennsylvania.

Penn and the Third Lord Baltimore met at Anne Arundel on December 12, 1682, to discuss the location of the southern boundary of the Penn grant. It was suggested that a measurement northward be made from Cape Charles at the end of the Delmarva Peninsula (37 degrees 5 minutes North Latitude). King Charles had suggested using 60 miles per degree. The correct distance is about 69.5 miles. Using the 60 miles per degree would have given Penn access to the Chesapeake Bay, something he was anxious to have. Lord

Baltimore wanted to determine the boundary by finding the location of the 40th parallel by astronomical means. The conference ended with little accomplished except the outlining of the position of each party.

As previously noted, the Duke of York had taken the Delaware territories from the Dutch without title or charter. This was corrected on March 22, 1683, when Charles II granted the Delaware territories to the Duke of York. The Duke did not give a new grant to Penn at that time.

Royal Rulers of England

1603-1625	James I
1625-1649	Charles I
1649-1660	Commonwealth
1660-1685	Charles II
1685-1688	James II
1688-1702	William III & (until 1694) Mary
1702-1714	Anne
1714-1727	George I
1727-1760	George II
1760-1820	George III

[3] These deeds and leases are in the Delaware Public Archives in Dover.

THE CONFLICT CONTINUES

William Penn and Lord Baltimore met in New Castle in May 1683. Penn still wanted to measure up the peninsula using 60 miles per degree. Lord Baltimore stood firm on the fortieth parallel as his boundary and on actually locating it by astronomical means. Penn offered to agree with Lord Baltimore if he would sell access to the headwaters of the Chesapeake to him, but Lord Baltimore refused. Adjudication at Court seemed necessary to resolve the conflict. Penn welcomed this but Lord Baltimore abhorred the action. He had obstructed the collection of the King's taxes and was out of touch with the Court.

Penn submitted a declaration against Lord Baltimore. This was forwarded to the Commissioners for Trade and Plantations. Penn and Lord Baltimore went to England to participate in the action to be taken by the King's officers. These were the officers of the new King, James II, the former Duke of York, and the friend and patron of Penn. But Penn's arguments were unsuccessful until he raised the argument of *hactenus inculta*. Penn claimed that Lord Baltimore's charter rights were preempted by the Dutch settlement at Zwaanendael prior to the granting of the Calvert charter.

The verdict of the Commissioner for Trade and Plantations was rendered on November 7, 1685. It did not completely vindicate Penn's claims but was a compromise.

They recommended that the peninsula be divided between the parties. King James II issued a decree ordering "that for avoiding further differences, the tract of land lying between the Bay of Delaware and the eastern sea on one side, and the Chesapeake Bay on the other, be divided into equal parts by a line from the latitude of Cape Henlopen to the fortieth degree of north latitude, the southern boundary of Pennsylvania by charter, and that one half thereof, lying towards the Delaware Bay and the eastern sea, be adjudged to belong to his majesty (*and thus to Penn*), and the other half to Lord Baltimore, as comprised in his charter." In December, 1688, King James II had a definitive grant made out to Penn for the Delaware territory. The King excused Penn from all obligations, past or future, directed him to share the

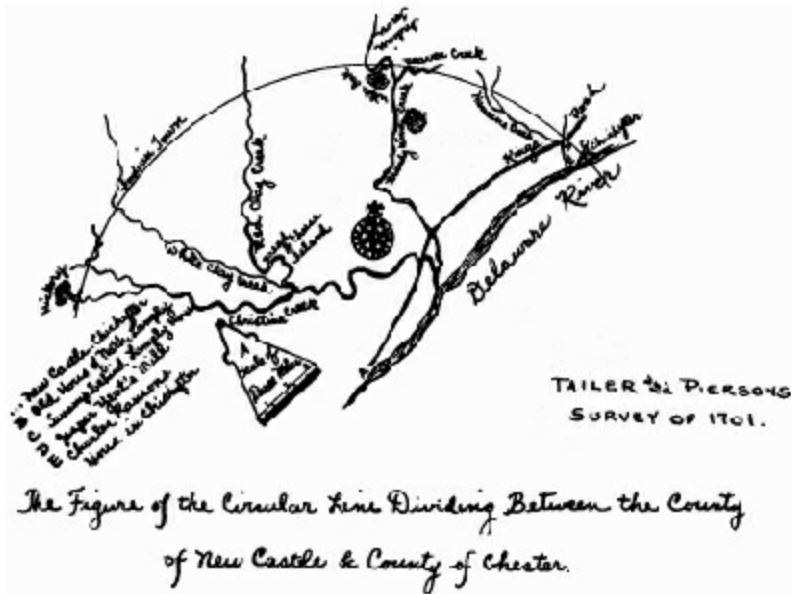
revenues, and named Penn true and absolute proprietor, free to merge this new province with Pennsylvania in one government under one set of laws if he wished.

In spite of Penn's arguments, the 40th parallel remained as the northern boundary of Maryland. But Lord Baltimore continued to fail to take steps to have the boundary surveyed and monuments put in place.

When William III came to the throne in 1685, the political policy was to bring the colonies under closer control of the Crown, so for a short time Pennsylvania and Maryland became Crown colonies. Penn regained the right to govern in 1694 but the Calverts did not regain the same right until 1715.

On July 20, 1701, the people of the Three Lower Counties submitted a petition to the Pennsylvania Assembly for a separate assembly and administrative officers. They had become dissatisfied with Penn's administration. There were many ethnic and religious differences between the Delawareans and the Pennsylvanians, as well as commercial rivalries between Philadelphia and New Castle. There were also problems over the selection of judges and military protection. Penn granted the request and issued a warrant on August 28, 1701, for a survey separating the counties of Chester and New Castle.

Isaac Taylor of Chester County and Thomas Piersons of New Castle County were appointed to survey and mark the boundary between the counties. The boundary would be a circular arc of 12-mile radius with the town of New Castle as the center and extending from the Delaware River westward one-third of a circle (120 degrees.) The survey was started at the end of a horse dyke in New Castle on September 26 and was completed on October 4. The surveyors ran a meridian line to the north and arrived at an "S" curve in Brandywine Creek. The length of their meridian was later found to be about 2,000 feet too far from New Castle. This may have been the result of using a "worn" chain that was used for measuring distance. They then ran chords of a circle to the east and west until they had measured one-third of a circle. On the eastern end they arrived at a house occupied by Daniel Lamplough on the banks of the Delaware. On the western end they ended at a stream which was probably a branch of Christina Creek. The circular line was marked by blazed trees and served as a boundary between two counties of the same colony and then later as a boundary between two states.



Survey of the Circular Line by Isaac Taylor and Thomas Piersons, 1701.

Cummings, Hubertis M., *The Mason and Dixon Line, Story for a Bicentenary 1763-1963*
(Pennsylvania, Department of Internal Affairs, 1963), 3.

In 1709, Lord Baltimore petitioned Queen Anne to set aside the adverse parts of the Decree of 1685. On January 27, 1710, Penn asked for the dismissal of Lord Baltimore's petition. On June 23, the Queen denied the petition of Lord Baltimore.

The Taylor and Piersons survey of the boundary between the two counties was approved by the Pennsylvania Assembly in 1715 and by the Delaware Assembly in 1719.

William Penn died in 1718 after a long illness. For six years prior to his death, Penn was incapable of conducting any business so his second wife, Hannah, had to assume his business responsibilities. In his will Penn left out the son of his first marriage, William Jr., whom he thought to be improvident. He gave his colonial claims to the sons of his second marriage. John, the eldest, received a double share and Thomas and Richard each received a single share. John was a bachelor and upon his death his share was left to his brother Thomas.

As the population of the disputed areas increased, it became more urgent for the determination of the boundary lines. There were also difficulties in collecting taxes and there were border feuds. Both sides seemed ready for a

settlement.

In 1731, the Fifth Lord Baltimore petitioned George II for an order to force the Penns to join him in the demarcation of the boundaries and, if the Penns refused, then the King should review the entire question of boundaries and grants. The petition was referred to the Committee for Trade and Plantations. During the many meetings that were held, each proprietor produced a map of the areas in question. There was some discussion about the northern boundary of Maryland, and whether it should be 15 or 20 miles south of Philadelphia, although Lord Baltimore continued to argue for the 40th parallel.

No final order was given by the Committee for Trades and Plantations, but the parties entered into Articles of Agreement on May 10, 1732. The line of division was to run due west from Cape Henlopen to a point in the middle of the peninsula and then northerly to a point tangent to a 12-mile circle around New Castle. Then the line should run around the circle until it was due north of the tangent point and then should run due north until it intersected an east-west line 15 miles south of Philadelphia.

The map that was appended to the Agreement incorrectly located Cape Henlopen at what is now Fenwick Island. This is about 19 miles south of the present Cape Henlopen. The result was a loss of about 800 square miles of land from Maryland. The location of the northern boundary of Maryland at 15 miles south of Philadelphia resulted in the loss of about 3700 square miles. Lord Baltimore must have been very anxious to reach an agreement to have willingly agreed to such unfavorable terms.



View of Delaware Bay from Cape Henlopen State Park
Photo by Jeff Blackwell



Reproduction of original map in the Agreement Between Lord Baltimore and the Penns.
Meade, Buford K., *Report on Surveys of Delaware-Maryland Boundaries* (Maryland, U.S. Department of Commerce, 1982), 294.

The Agreement called for the appointment of seven Commissioners for each party; any three from either party would be a quorum. The operations should be fair and should be finished with dispatch; i.e., with the lines to be well marked by natural objects and later by stone markers. If a quorum of either party failed to attend a meeting, the defaulting party was to pay to the other party the sum of £5,000.

The first meeting of the Commissioners was held in 1734 at Newtown, (now Chestertown) Maryland. The governor of each colony was named as a

commissioner. The Commissioners met four other times in New Castle, once at Joppa in Baltimore County, and once in Philadelphia. Two questions were discussed: where was the center of the circle to be located, and what should be the size of the circle? The Maryland Commissioners took the position that the circle should be 12 miles in circumference. The Pennsylvania Commissioners held that the circle was to have a radius of 12 miles. After much argument over the circle question, the Commissioners signed a joint statement stating that they could not reach an agreement.

In the meantime, serious border disputes led the Governor and the Assembly of Maryland to ask George II for help. On May 4, 1738, the King issued an edict forbidding disorders and enjoining the proprietors from making any grants in the areas of controversy. On May 25, the King ordered that a temporary line should be run fifteen and one-quarter miles south of Philadelphia on the east side of the Susquehanna River and fourteen and three-quarter miles south of Philadelphia on the west side of the Susquehanna. These temporary lines became the accepted boundary until 1763-1767.

Lord Baltimore had filed a petition in 1734 for confirmation of his charter. Penn then filed a petition asking for the dismissal of Baltimore's petition and for confirmation of his title. Thus began the Great Chancery Suit that was initiated in 1735 and concluded in 1750. Many hearings were held, many hours of testimony given, and there were many delays. Finally on May 15, 1750, the High Chancellor, Lord Hardwicke (Strange Whittington) issued his order that the agreement of 1732 should be binding on the parties. This meant that the northern boundary of Maryland would continue to be 15 miles south of Philadelphia. The Chancellor decreed that Commissioners should be appointed within three months and that they should be authorized to draw the boundaries called for in the 1732 agreement and that the work should be completed in 1752. He also decided the questions which had caused the suit. The center of the circle was to be the center of New Castle, the circle should have a radius of 12 miles, and Cape Henlopen (present day Fenwick Island) should be situated as shown on the map affixed to the Articles of Agreement.

The Commissioners held their first meeting in New Castle on November 14, 1750. They decided that the courthouse should be the center of New Castle. Disagreement then arose as to the use of horizontal or superficial

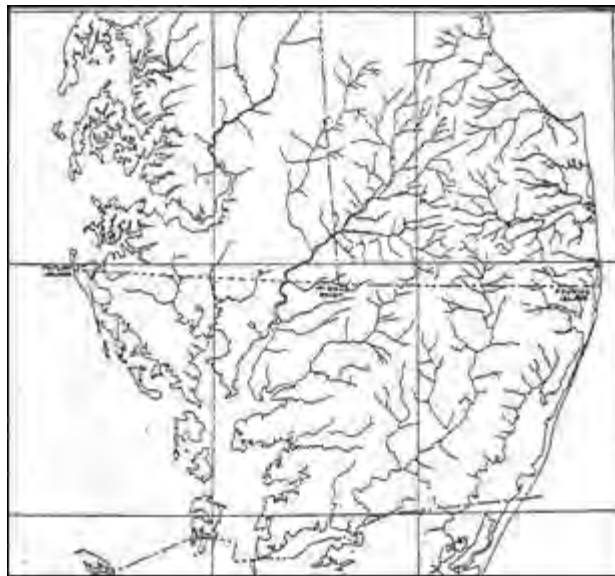
measurement. Using horizontal measurement would provide for uniform distances no matter where the measurement was made. Superficial measurement would tend to make the distances different because of the ups and downs over different areas being measured. The Maryland Commissioners wanted to use superficial radii one degree apart. The Penns wanted to use one horizontal radius and then to run chords subtending one degree at the courthouse. The Maryland Commissioners suggested asking for instructions on the resolution of the differences.



The Blue Hen Chicken
State Bird of Delaware

SURVEY BEGUN ON TRANSPENINSULAR LINE

The Commissioners sent surveyors to Cape Henlopen (or what we know as Fenwick Island). There the surveyors started at the Initial Point, 139 perches from the Atlantic Ocean and then ran a line due west. They halted their work after completing only six miles because of the severe winter weather. They resumed their work in April and by June 12 they had reached Slaughter Creek. They then continued the survey until they reached the open water of the Chesapeake Bay. Completing this line was extremely hard work. There were many streams and creeks to cross and trees and brush to travel through and to cut for sight lines. Unlike today, there were no chain saws or bulldozers, no roads or bridges, and no insect repellents.



The Transpeninsular Line showing the Middle Point.

Bayliff, William H., *The Maryland-Pennsylvania and The Maryland-Delaware Boundaries* (Maryland, Board of Natural Resources, 1959), 12.

The Maryland Commissioners wanted to stop at Slaughter Creek; the Penns wanted to continue to the open water of the Chesapeake because

Slaughter Creek was only two feet deep at low tide. Stopping at Slaughter Creek would have moved the Middle Point toward the ocean and would have given Maryland more territory. The dispute was referred to the Lord High Chancellor. The Commissioners adjourned to await his decision.

The Commissioners had instructed the surveyors to mark each mile and to put a stone at the end of every five miles. Since it was believed that the Middle Point would be at least 25 miles from the Initial Point, it was thought to be safe to place permanent markers through the first 25 miles of the line. Markers were placed at the Initial Point and then at 5, 10, 20, and 25 miles. None was placed at the 15 mile point because of the unsuitable conditions caused by the Pocomoke River and its swamps.

The monuments were rectangular in cross-section and with rounded tops. On one side was the armorial shield of the Coat of Arms of Lord Baltimore and on the other side the armorial shield of the Coat of Arms of the Penns.

The title of Lord Baltimore extends over a period of one hundred and forty-seven years, from 1624 to 1771. George Calvert, first Baron of Baltimore, was elevated to the peerage by Charles I. The title passed from father to son until it reached Frederick Calvert, sixth Lord Baltimore, who died in 1771 without an heir.

In the list below the date for each Lord is the date of accession and the last date is the date of death.

First: George Calvert	1624-1632
Second: Cecil Calvert	1632-1675
Third: Charles Calvert	1675-1715
Fourth: Benedict Leonard Calvert	1715-1715
Fifth: Charles Calvert	1715-1751
Sixth: Frederick Calvert	1751-1771

In 1751, Charles, the Fifth Lord of Baltimore, died. His son, Frederick, inherited the title but Charles left the proprietorship to his daughter. Upon the advice of his uncle, Cecil Calvert, the young Lord Baltimore refused to be bound by the agreements of his father. The uncle wanted any settlement to wait until Frederick attained his majority. These events further delayed a settlement of the boundaries.

By 1760, the Sixth Lord Baltimore had grown tired of the fight over the

boundaries probably because it appeared that he would lose. He entered into an agreement with the Penns on July 4, 1760, the basis of which was the agreement of 1732 and the Chancellor's Decree of 1750. In the meantime, The Lord High Chancellor had ruled in favor of horizontal measurement and that the width of the peninsula should be from the Atlantic Ocean to the open water of the Chesapeake Bay.

Two meetings of the Commissioners under the 1760 agreement were held in November, 1760. They accepted the line run in 1750 and 1751, and fixed the Middle Point by marking it with an oak post. They satisfied themselves that the Middle Point was in the correct position and they set up a stone marker two feet eight inches to the north of the post marking the Middle Point. It was the same as the other markers at the five-mile intervals. They also placed the same kind of stone at the 30-mile point.

In 1974, it was found that the Transpeninsular Line curved slightly to the north from the five-mile monument to Middle Point. This was one of the two times the Calverts obtained an advantage over the Penns.



Frederick Calvert, the Sixth Lord Baltimore

TANGENT LINE

Colonial surveyors were then directed to determine the location of a line from Middle Point to a point tangent to an arc of the 12-mile circle due west of New Castle. In 1761, they first ran a meridian line due north until they reached a point about 80 miles north of Middle Point. The surveyors determined the distance from this point to the center of New Castle and the exact distance from Middle Point. They then calculated the location of the tangent point and set up a post marked M/XII which they determined to be "twelve English statute miles from the spire of the courthouse of New Castle."



New Castle Court House

The following spring, after making mathematical calculations to determine the direction and distance from Middle Point to the Tangent Point, the colonial surveyors started running the tangent line. Upon arriving near the tangent point, they found that their line cut the radius from New Castle at a point nearly half a mile to the east of the post marked M/XII. They completed

a new tangent line in 1763 that was five chains[4] and 25 links west of the post marked M/XII.

After almost three years of little progress, the proprietors had grown impatient with the Colonial surveyors and their problems, which included a faulty survey telescope and some basic miscalculations. The Transpeninsular Line and the uncompleted tangent line were their only results. The completion of the Tangent Line, and the running of the Arc Line, North Line, and West Line remained to be completed.



From left: Roger Nathan and William "Sandy" Schenck at Transpeninsular (E-W) Line # 14

[4] A chain is 66 feet long and has 100 links; each link is 7.92 inches.

MASON AND DIXON

The situation called for the best survey instruments available and persons of scientific competence who were to be of "Great Integrity and totally unbiased and unprejudiced on either side of the question." It appeared that nominations for surveyors were solicited from the Astronomer Royal, Charles Bradley, director of the Greenwich Observatory, and his successor, Nathaniel Bliss.

Charles Mason had been an assistant at the Greenwich Observatory from 1756 to 1760. He had worked with Bradley on cataloging positions of the moon and on designing improvements in astronomical instruments. Jeremiah Dixon had been brought to the attention of John Bird, a member of the Royal Society, and was described as a competent surveyor from Durham County, England. Both men participated in important astronomical work at the Cape of Good Hope. Through that project they became aware of instruments which they would later use in their surveys for the proprietors.

The Penns and the Sixth Lord Baltimore agreed to employ Mason and Dixon[5] so a contract was completed on July 20, 1763. The contract outlined the responsibilities and compensation. They were to be paid one pound, one shilling daily for the period of the survey. The proprietors were to share equally the expenses of the project. The surveyors were to file identical reports with the Commissioners of each colony and they were to start their work as soon as possible.

Mason and Dixon arrived in Philadelphia on November 15, 1763. They brought with them the finest survey instruments available including a newly designed zenith sector and a new astronomical clock. Their contract called for them "to mark, run out, settle, fix and determine all such parts of the Circle, Marks, lines and boundaries as are mentioned in the several Articles of Agreement or Commissions and are not yet completed." This included the running of an east-west line that would be 15 miles south of the southernmost part of Philadelphia; the Tangent Line; a meridian (later called the North Line) from the tangent point until it intersected the east-west line; and an arc of the 12-mile circle around New Castle from the tangent point until it

intersected the North Line.

From November 16 until December 18 they unpacked their equipment, met with the Commissioners, and built an observatory. On December 6, an oath was administered and they were given further instructions:

"You are to Enter fair Minutes of your proceedings in two Books, to be by you kept for that purpose, which Minutes are every Day to be signed by both of you, and in such Minutes you will take Notice of the most remarkable Buildings, Waters, Bridges and Roads that may be near the Lines which you are to run or through which the Lines must pass. If the lines you are required to run, pass through any Houses, Orchards, or Gardens you are not to destroy or Injure any such house nor cut down any Fruit trees without the consent of the Owners . . . "

With the aid of city authorities, they located the southernmost part of Philadelphia. They were told that it was on Cedar Street (now South Street) near Second Street. They erected a temporary observatory on a building nearby. They carried their instruments to the observatory and then waited for good weather so that they could make proper observations of the stars. Their first observations were made on December 16. Because of the weather, it was not until January 4, 1764, that they were finally able to record that they had determined the latitude of the observatory to be $39^{\circ} 56' 30.2''$ north latitude.

They knew that the southernmost part of Philadelphia was 1.1 seconds south of the latitude of the observatory so subtracting the 1.1 seconds from the observed amount placed the southernmost point of the city at $39^{\circ} 56' 29.1''$.

Mason and Dixon then moved 31 miles to the west by following one of the temporary boundary lines that had been established in 1738. Then they returned to take down their observatory and pack their equipment to prepare for a trip to the west. The zenith sector was carried on a mattress in a wagon and was handled with great care. They arrived at the farm of Joel Harlan (near the present Embreeville State Hospital) which became their headquarters until the completion of all of their boundary work for the

proprietors.



Joel Harlan's house, headquarters for Mason and Dixon while in the Colonies.

They established a temporary observatory behind Harlan's house and erected a stone as a point of reference. At this stone they made many observations of the stars to determine the latitude of the stone.[6] They then started running a line due south for the prescribed-distance of 15 miles. Local axemen were employed to cut a visto[7] so that the surveyors could see along the line. Because of some steep slopes, the surveyors used wooden frames that were 16 ½ feet long and were called "levels."



The Stargazers' Stone.



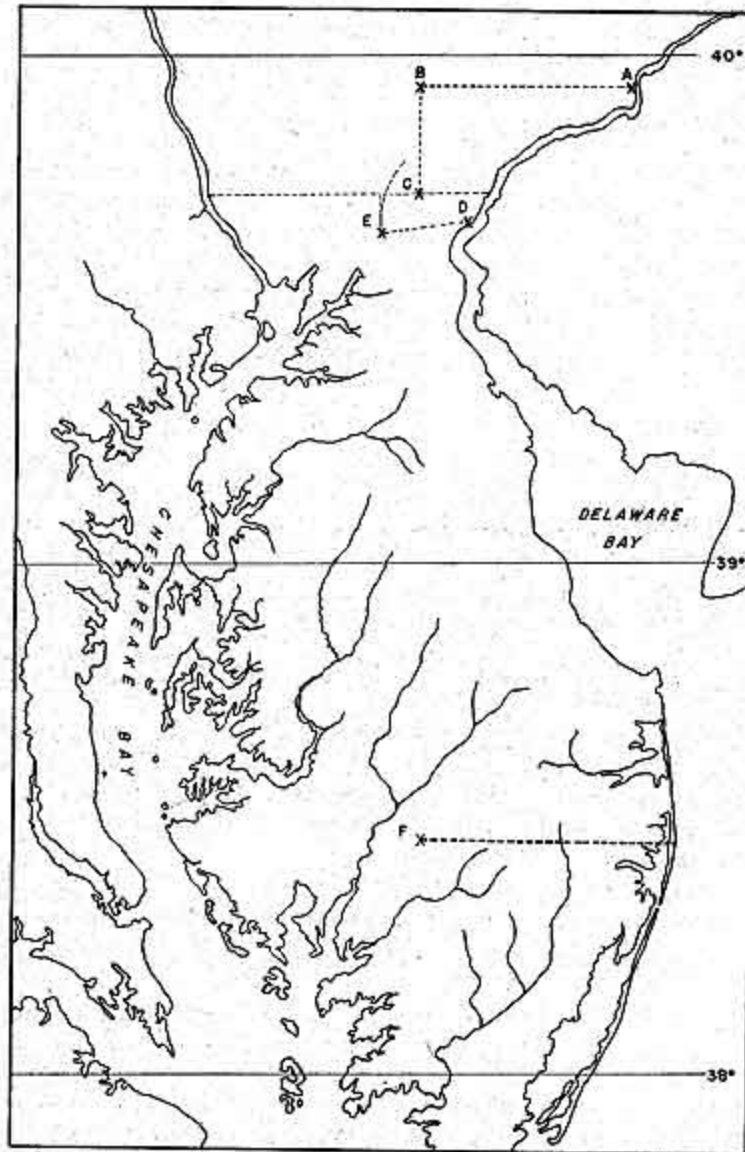
Historical Marker on the site of Stargazers' Stone

Mason and Dixon arrived in the field of Mr. Alexander Bryan on April 12, 1764. There they made allowance for the differences in latitude of the

Stargazers' Stone and the latitude of the southernmost point in Philadelphia. They rechecked their measurement from the Stargazers' Stone, and then they erected a post they called "Post mark'd West." To determine the latitude of the east-west line (called the West Line by Mason and Dixon), they erected a temporary observatory. After several days of observations, they were able to record that the latitude of the West line, the line that would separate Maryland and Pennsylvania, was $39^{\circ} 43' 17.6''$.



American Holly State Tree of Delaware



Initial Lines and Points in the Mason-Dixon Surveys. A, southernmost point in Philadelphia; B, headquarters and observatory on Joel Harlan's farm; C, the Post Mark'd West, 15 miles south of Philadelphia; D, New Castle, DE; E, radius of twelve-mile circle around New Castle; F, Middle Point.

Bayliff, William H., *The Maryland-Pennsylvania and Maryland-Delaware Boundaries* (Maryland, Board of Natural Resources, 1959), 17.

Mason and Dixon were now ready to begin the running of the West line but, because they received no further orders from the Commissioners by June 13, they followed the instructions in their contract and proceeded south toward Middle Point.

Mason described their journey to Middle Point in their Journal:

"1764

June

18 *The waggons set out from Newcastle.*

19 *Joined the waggons and arrived at Dover at night.*

20 *At Esquire White's.*

21 *At Mr. Brown's.*

22 *At the River Nanticoke; pitched our Tents on its Banks.*

23 *Engaged axmen, etc. The whole company including Steward, Tent keepers, Cooks, Chain carriers, etc. amounting to 39. Two Waggons, Eight Horses, etc.*

24 *(Sunday)*

25 *Crossed the River Nanticoke in canoes and went to Middle Point, fixed up the Transit instrument and began to produce an arch of a Great Circle in the direction last run."*

By July 2, Mason and Dixon had crossed the Nanticoke River and placed a post at the 7 mile point.[8] Then for the next seven weeks they proceeded up the line which ran slightly to the west of due north. They crossed Marshy Hope, the Choptank River, the Bohemia River, and Broad Creek and, on August 25, set up mile post 81 where they judged they were "past the Point settled before to be the Tangent Point in the Circle of 12 Miles Radius round New Castle." On August 27, they had a visto reopened and produced "the Line run from Newcastle Court House till it intersected the Line we had run." They placed a post at a point 17.25 chains to the west of the tangent point determined by the Colonial surveyors. After Mason and Dixon checked their results, they were ready on September 4 to return mile by mile and by offsets to the east until they reached Middle Point.

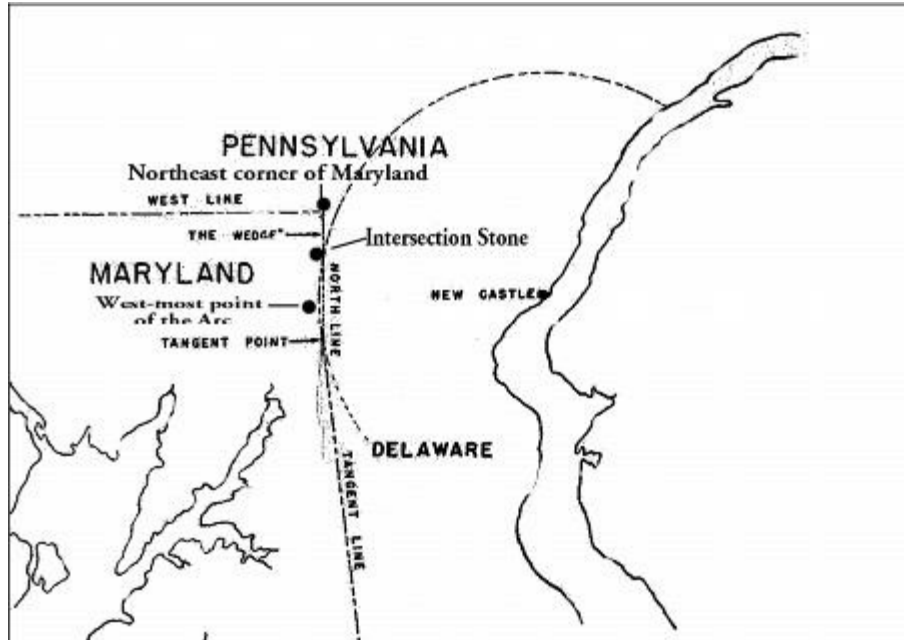
On September 25 they reached Middle Point and found that they were two feet two inches to the west of it.

"This distance being very small in the Radius of 10 Miles its Correction would bear no Proportion to the Loss of Time and Expense on the Part of the Honorable Proprietors, we therefore resolved to return to the 10th Mile Post and continue the Direction toward the 12 Mile Post from

Newcastle."

They then started back up the line making more offsets until, on November 10, they were 16 feet 9 inches east of "The Tangent Point settl'd by the former surveyors." [9] Mason and Dixon made many computations and measurements and finally determined that their last line touched the 12-mile circle from New Castle at exactly a right angle to its radius. They declared "From the Whole we conclude that the Offset Posts in our last Visto, mark'd MD, are in the True Tangent Line."

Mason and Dixon notified the Governors of the two colonies that they had finished the Tangent Line. They waited eight days for meetings with the Commissioners, which took place on November 22, 23, and 24. On the last day, the Commissioners passed a resolution approving what Mason and Dixon had done. They discharged all of their hands and then returned to Harlan's house for the winter. They did not resume any field work until March 1765, when they started at the Post mark'd West and ran a line westward for 25 miles, 75 chains, 57 links.



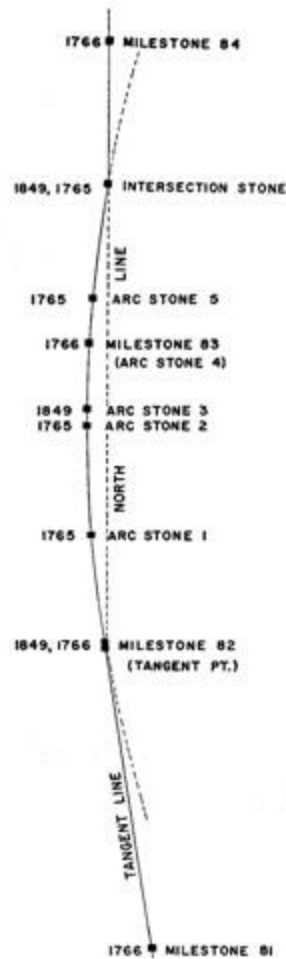
The relationship between the Tangent Line, the Circle and the North Line.

Bayliff, William H., *The Maryland-Pennsylvania and The Maryland-Delaware Boundaries* (Maryland, Board of Natural Resources), 19.

The two surveyors then returned to the Tangent Point and prepared to run the North Line and the Arc. All of the agreements had provided for a north line to be run from the Tangent Point to an intersection with the West Line. No one knew whether the North Line would cut through the arc of the 12-mile circle or whether it would lie completely to the west of the circle. Therefore, all of the agreements provided:

"In case said North Line from the Tangent of the Circle of Newcastle shall break in upon the said Circle, in such case, so much of the said Circle as shall be cut off by the said line, shall belong to, and be part of the County of Newcastle."

After running the North Line, Mason and Dixon found that the North Line did cut through the 12-mile circle and that the segment of the circle that laid to the west of the North Line contained about 13 acres.



Boundary Monuments on and Near the Arc Line. The dates indicate when the monuments were put in place.

Bayliff, William H., *The Maryland-Pennsylvania and The Maryland-Delaware Boundaries* (Maryland, Board of Natural Resources, 1959), 29.

[5] Charles Mason was 35 years old and Jeremiah Dixon was 30 years old.

[6] The stone became known as the Stargazers' Stone because the local residents called the surveyors stargazers. The Chester County Historical Society owned the stone since 1908 when Henry and Elizabeth Harlan presented the stone and a plot of ground eight feet square to the Society. Henry Harlan was the great-grandson of Joel Harlan. The Society erected a low stone wall around the stone and placed an historical marker on the site. In 1991, the Chester County Historical Society gave the site to Chester County.

[7] A line of sight.

[8] Because the Nanticoke River was too wide and too deep to measure directly, the surveyors determined the width by using triangulation.

[9] These surveyors were John Lukens and Archibald McClean for Pennsylvania and Thomas Garnett and John Riggs for Maryland.

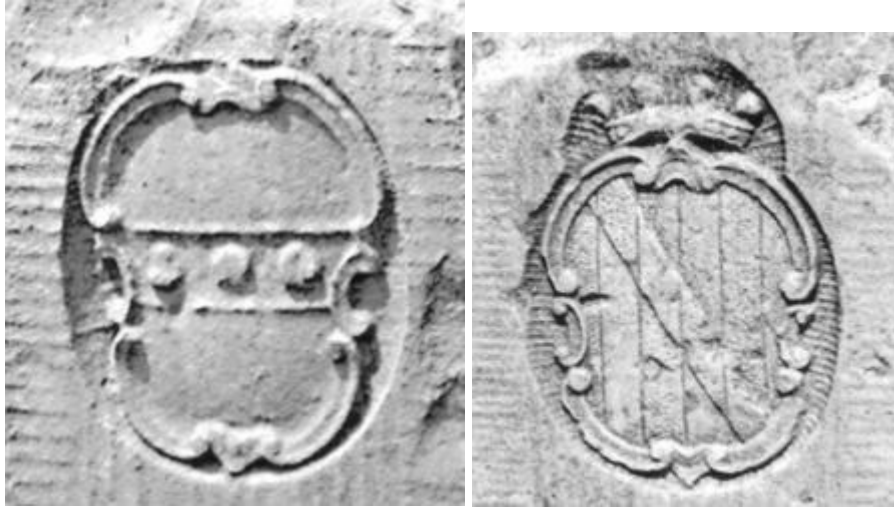
MASON AND DIXON MONUMENTS

Monuments to be placed at every mile point on the three lines had been made of oolitic limestone quarried on the Isle of Portland, Dorsetshire, England. They are three-and-a-half to five feet in length, 12 inches square, and have a low, pyramidal top. Vertical and horizontal lines appear on all four sides. They were brought to the colonies on the *Betsy Lloyd*, taken up the Nanticoke and Choptank Rivers and, in the presence of one commissioner of each colony, placed on the boundary lines from December 17, 1765, to January 1, 1766.

The monuments at every five miles have the armorial shield of the Coat of Arms of Lord Baltimore on the west side and the armorial shield of the Coat of Arms of the Penns on the east side.^[10] The monuments at the other mile points have an **M** on the west side and a **P** on the east side carved into flat ellipses.

A stone was placed at the Tangent Point on November 20, 1766. This stone was like the stones that had been placed on the Transpeninsular Line by the Colonial surveyors. An unmarked stone was placed at the intersection of the North Line with the beginning of the West Line. Three stones with **M**s and **P**s were placed on the North Line and one of them was placed on the Arc Line at the point that was 83 miles from Middle Point. Four other stones similar in shape to the one at Tangent Point were also placed on the Arc Line. One of them was placed at the northern end of the Arc Line at its intersection with the North Line. It was called the Intersection Stone.

In November, 1768, double crownstones were placed at the north end of the North Line (the northeast corner of Maryland) and at Middle Point (the southwest corner of the Three Lower Counties of Pennsylvania [now Delaware.]) These monuments were made slightly larger in cross-section than the others on the north-south lines. They had the armorial shield of Lord Baltimore on the south and west sides and the armorial shield of the Penns on the north and east sides.



Armorial Shields of the Coats of Arms

Top: Calvert Coat of Arms taken from Tangent Line marker #45.

Right: Penn Coat of Arms taken from Tangent Line marker #55.

[10] The five-mile monuments became known as crownstones because a likeness of a crown appeared in the shield of the Coat of Arms of Lord Baltimore.

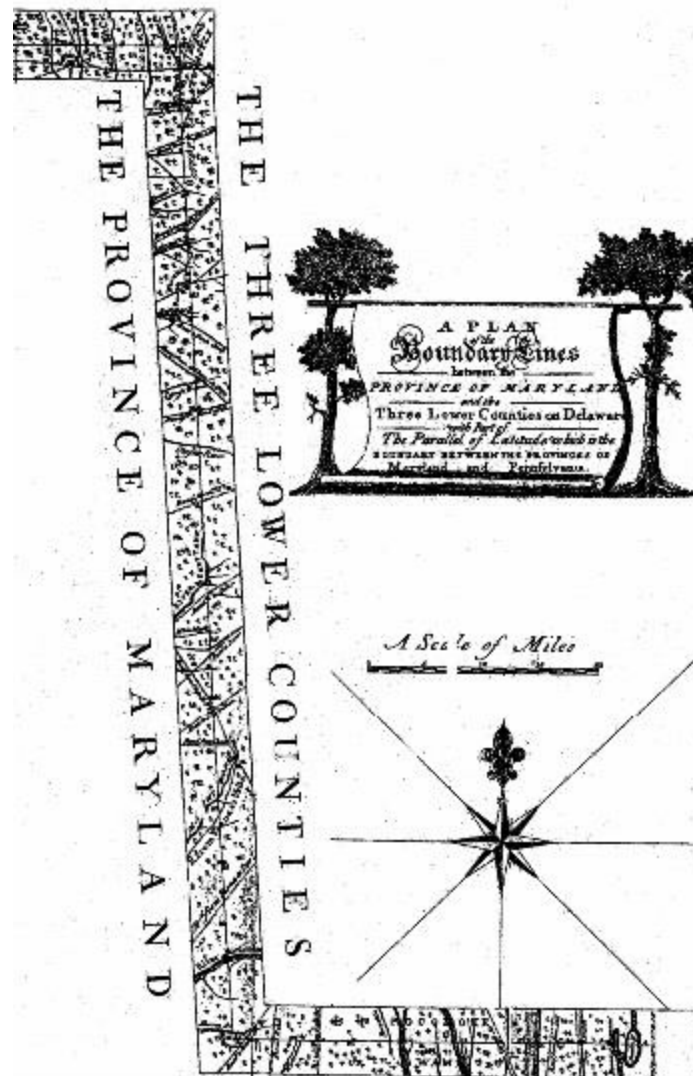
THE MASON AND DIXON LINE

Mason and Dixon had now completed the running of the north-south lines. The boundary started at the Middle Point, ran northward to the Tangent Point, continued northward around the Arc Line, and then up the North Line to the intersection with the West Line. They then resumed work on the West Line and determined and marked the boundary between Maryland and Pennsylvania. But, the Penn grant went beyond the limit of Maryland and yet they continued to run the West Line.[11] The surveyors were unable to complete the distance of 5 degrees of longitude west of Delaware because of problems of dealing with the Indians. They returned to the east and met with the Commissioners at Christina Bridge on November 24, 25, and 26 of 1767. The Commissioners instructed the surveyors to draw a plan of the boundaries. In their Journal they noted that the plan was "delivered to the Rev'd Rich'd Peters." The original plan is now in the Land Office in Annapolis. The Journal was found in Halifax, Nova Scotia, and in 1877 was purchased for \$500 in gold by the Department of State. It was later transferred to the National Archives. (Transcribed copies of The Journal were published in 1969 by The American Philosophical Society, Philadelphia.)



Pennsylvania State Seal

The State seal shows a shield with a sailing ship, a plough, and three sheaves of wheat. The combination of symbols on the shield may represent seals from early Pennsylvania counties. The seal received legal recognition from the General Assembly in 1791, when it was designated the official State Seal.



Part of the Mason and Dixon Plan of the Boundaries

During their stay in the colonies, Mason and Dixon were involved in other scientific work as well. They had observed that the smooth and almost level terrain of what is now known as the Delmarva Peninsula would be well adapted to the geodetic measurement of a degree of latitude. No other measurements of the earth had ever been made in North America. They petitioned the Royal Astronomer who arranged for the Royal Society to fund the project. The Proprietors also approved. They were interested because the results would provide information on the precise length of longitude along the West Line. The surveyors completed the work on the project in 1768.

Mason and Dixon were elected into membership of the American

Philosophical Society while they were in America.

It was not all work and no play for the two men. In 1765, Mason visited Princeton and New York. Later in the year, the pair toured the countryside in the states of Pennsylvania, Maryland and Virginia, including Williamsburg.

Having completed their work for the proprietors on September 11, 1768, Mason and Dixon sailed from New York to Falmouth. On November 11 in London, they submitted their final bill for £3,512 / 9 s. The Proprietors willingly paid.

After returning to England, Jeremiah Dixon, a Quaker bachelor, performed some work for the Royal Society and then apparently retired to his home in Cockfield, County Durham. He died there on January 22, 1779, and was buried in the Friends' Burial Ground, Staindrop.

Charles Mason continued to work for the Royal Astronomer for 18 years after returning to England. In 1786, Mason, his wife and family of eight children traveled to Philadelphia. Shortly after arriving, Mason sent a letter to Benjamin Franklin saying "that he was ill and confined to bed." On October 25, 1786, he died and was buried in an unmarked grave in the Christ Church Burial Ground on Arch Street in Philadelphia.

The Proprietors petitioned King George III for approval of the boundaries on August 20, 1768. The King in Council on January 11, 1769, ratified the boundaries between Pennsylvania and Maryland. Eighty-eight years after the beginning of the boundary conflict, these boundaries were finally settled. In 1776, the Colonies declared their independence and the Proprietors lost their colonies. The final step in the boundary settlement for the Three Lower Counties took place in 1775 when the Delaware assembly ordered the boundaries of all counties and hundreds to be extended to the newly established lines.

Acting on the advice of the Continental Congress, the people of Delaware called a convention which met at New Castle in August 1776 and then on September 20, adopted a constitution and declared that the Territory should be called "Delaware State."



Delaware State Seal-1751

The 1751 state seal focussed on the three counties, but the insignia depicted the fact that they were still under English rule.

[11] The Calverts paid half of the cost for this work that had nothing to do with their boundary.

PROBLEMS WITH MONUMENTS

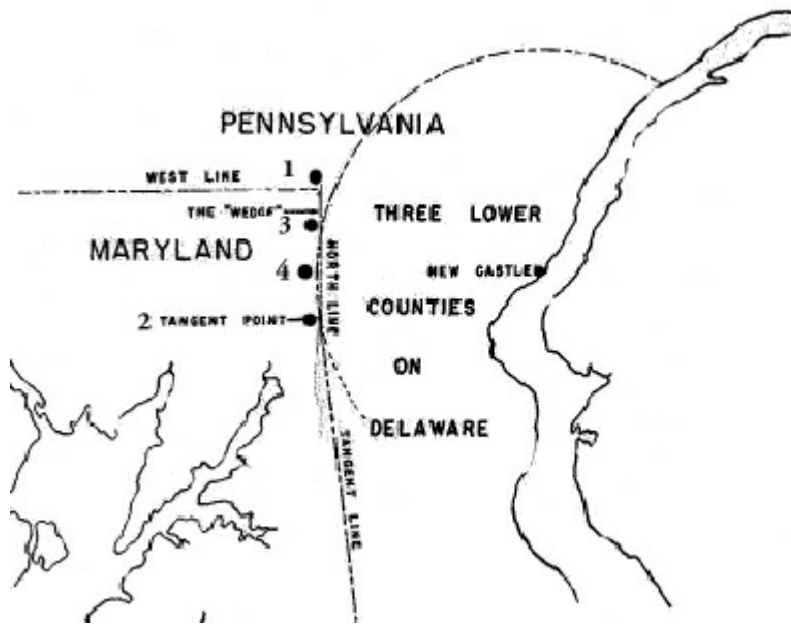
After the settlement of the boundaries, activities along the boundaries became calm and no further boundary activity took place until the 1840s. By then it was noticed that the double crownstone at the northeast corner of Maryland had disappeared. Because the stone was missing there were doubts about that corner and other monuments in the area. For those reasons, Maryland took action on February 11, 1846, to determine the location of the point of intersection of Maryland, Pennsylvania, and Delaware. On February 10, 1847, Delaware appointed a commissioner to act for its interests in locating the point of intersection. It was not until April 10, 1849, that Pennsylvania acted.

The Commissioner from each of the three states met in Wilmington in October 1849 to examine the problem. They decided to survey and locate four points: 1) the intersection of the North Line with the West Line (the northeast corner of Maryland); 2) the Tangent Point; 3) the point of intersection of the North Line with the Arc Line; and for the first time, 4) to find the westernmost point of the Arc Line. To perform this work they applied to the federal government and Lieut. Col. James D. Graham of the United States Army was assigned to lead a team for the survey.

Before beginning the survey, Col. Graham examined records that he found in Annapolis. On September 12, 1849 he met with the Commissioners in New Castle. He requested permission to make a "reconnaissance of the line and land-marks within the portion of the boundary in question." The Commissioners accompanied him on November 13 and 14.

They went to the northeast corner of Maryland and found a stake where the monument was supposed to be located. They proceeded west and found the first, second, and third monuments on the West Line. Then they went to the area of the Tangent Point to determine if the stone at the intersection of the North Line and the Arc Line was standing and then south for the same reason to the Tangent Stone. Then Graham and the party went south along

the Tangent Line past the monuments at mile 81 and mile 80 and then to mile 79.

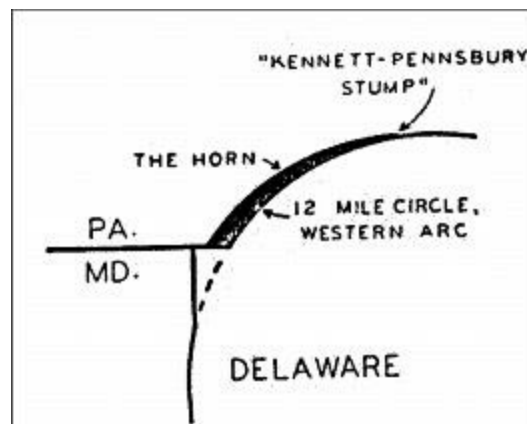
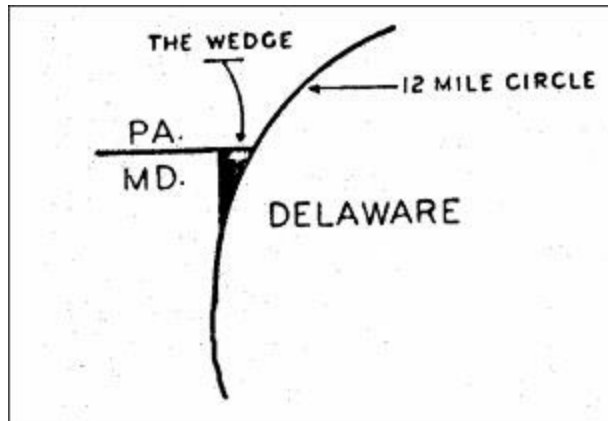


Location of the Points to be Recovered by Graham

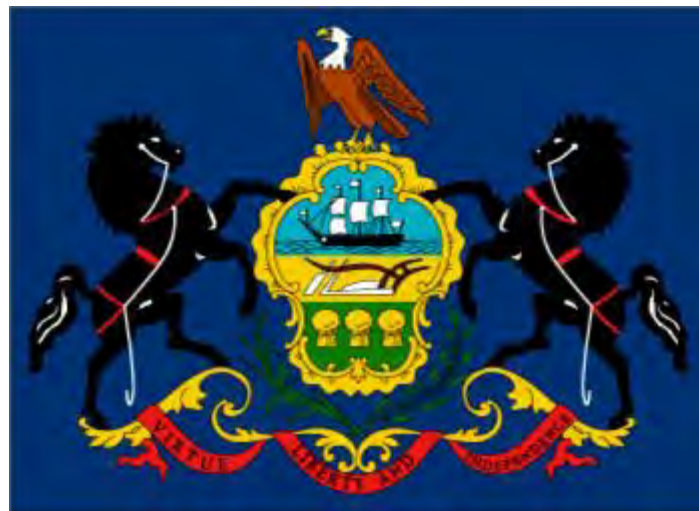
Bayliff, William H., *The Maryland-Pennsylvania and The Maryland-Delaware Boundaries* (Maryland, Board of Natural Resources, 1959), 19.

During the reconnaissance, Graham determined that the true intersection of the three states was located at the intersection of the North Line and the Arc Line. He disregarded "the well-known rule that an actual line upon the ground is to be preferred to the written description of the same line in a deed." He changed the position of the arc boundary as marked in 1701 (between Chester County and New Castle County) and assigned to Pennsylvania the triangular strip three and one-half miles in length (714 acres in area) west of the arc boundary and east of Maryland and south of an eastward extension of the West Line.

If Graham had been right in his assumption about the tri-state marker, why would Pennsylvania have admitted Delaware into the location of the missing monument at the northeast corner of Maryland. Clearly Graham was wrong but, by establishing the tri-state marker at the intersection of the North Line and the Arc, he created the area known as the **Wedge** that would exist until 1921.



The Wedge and the Horn



Pennsylvania State Flag

THE WEDGE and THE HORN

The Colonel and his crew confirmed the position of the Tangent Stone and placed a new monument there. He determined the location of the westernmost point on the Arc Line and placed a monument there. He placed a triangular monument where he believed the three states intersected. Near the northeast corner of Maryland, he ran a line along the West line toward the corner and then a line from the Tangent Stone to the corner. Where these lines intersected, he again found the stake and the point for the corner that he determined "did not deviate two inches to the right or left of the entire stake."

An excavation was made at the corner. At a depth of about three feet, an unmarked cut stone was found. It was precisely of the same form, dimensions, and quality as the unmarked stones on the Arc Line.[12] Graham then placed a new monument at the corner. It was marked with an **M** on the south and west sides and a **P** on the north and east sides. Keeping with his belief that Delaware did not intersect this point, he omitted a **D** from the monument. All of the Graham monuments were made of granite and were marked with the date of **1849**.

Graham's survey report was accepted by the commissioner from each state in March 1850. It is interesting to note that the Delaware commissioner did not object to the location of the tri-state monument. Maryland was not interested in the Wedge because its territory stopped at the North Line. Pennsylvania was pleased because it appeared that it gained the Wedge but Delaware continued to maintain jurisdiction over it. James Mackey, a Delaware legislator lived in the area in the White Clay Creek Hundred. Whenever he rose to address the legislature, the chair would recognize him "as the Gentleman from Pennsylvania."

No subsequent acts of the Pennsylvania or Delaware legislatures were passed because of the Graham Survey and Pennsylvania made no attempt to formally annex the Wedge.

In 1849, another event took place and, although it had nothing to do with the boundaries, it did involve a dispute between two states. The United States had acquired a Delaware title to *Pea Patch Island* (an island lying east of the

present Delaware City) in the Delaware River for the purpose of building a fort. A New Jersey resident, James Humphreys, claimed ownership to the island through a deed given in New Jersey. The United States and Humphreys were directly involved in the *Pea Patch* case. Delaware and New Jersey were represented to defend their respective titles although they were not parties to the suit. The Delaware title to the island was upheld.

Delaware-Pennsylvania Boundary Development

Although a boundary line between Chester County and New Castle County had been run in 1701, it had only been marked with tree blazes. When Delaware became an independent colony in 1776, the line became the boundary between two colonies and then later between two states. By the late 1800s Pennsylvania and Delaware had no clear information as to the actual location of the boundary. During the middle and late 1800s, because of the uncertainty of the jurisdiction over the Wedge, it became an area for prize and cockfights, dog matches, duels and a hangout for thieves and petty criminals. These activities, along with the increased population and wealth of the area led to increased agitation to determine the boundary. On April 25, 1889, Delaware passed an act appointing three commissioners on the part of Delaware to act in conjunction with a similar commission from Pennsylvania to agree upon and mark the boundary. On May 4, 1889, Pennsylvania passed a similar act.

To execute the location and marking of the boundary, the two states obtained the services of Colonel W. C. Hodgkins of the United States Coast and Geodetic Survey. In preparation for the survey, he studied the histories of the grants to the proprietors and the boundaries run by Taylor and Piersons, Mason and Dixon, and Colonel Graham.

Benjamin Smith of Philadelphia and Daniel Farra of Wilmington were employed to represent the interests of their respective states. On March 16, 1892, Hodgkins met with the two representatives in Philadelphia for the purpose of discussing the nature of the boundary to be run and to develop a general plan for the work. They decided to determine first the geographical positions of the New Castle courthouse, the stone marking the northeast corner of Maryland, and any points on the 1701 line which could be satisfactorily identified. Four other topics were discussed and the final part of the meeting was devoted to how the boundary would be surveyed and marked in accordance with the instructions of the commissioners. They decided to use triangulation to insure accuracy in locating the position of the markers.

After a long and diligent search, the surveyors found only four authentic points that had been marked by Taylor and Piersons on the 1701 Line:

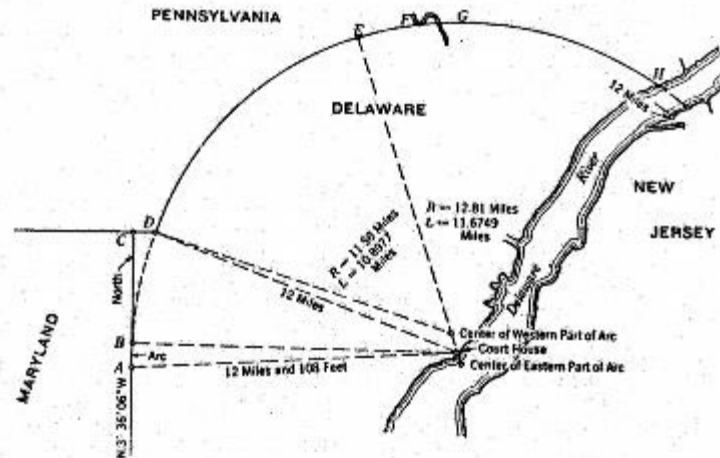
1. The remains of the old house near the Delaware River at which the 1701 survey was ended.
2. The boundaries of some farms lying between the Concord Pike (U.S. 202) and the Brandywine Creek. In the deeds for these farms, the state boundary line was cited as the northern boundary of the farms.
3. The peculiar "S" Curve in the Brandywine. This was described as the northern terminus of the 12- mile radius run from New Castle by Taylor and Piersons.
4. A large hickory stump[13] which marked the boundary of Kennett and Pennsbury Townships and the line between Chester and New Castle Counties.

West of the hickory stump no acceptable authentic points could be found.

Because of the difficulties in finding enough authentic points throughout the 1701 line, it was decided to use arcs of two circles. One arc would start at a point on the extension of the West line that was exactly 12 miles from the spire of the courthouse at New Castle and continue to the old hickory tree stump. It would have a radius of 11.58 miles, be 10.8977 miles in length, and its center would be a short distance in a NNW direction from New Castle. The second arc would begin at the old hickory tree stump, pass through the "S" Curve on the Brandywine, the other points found on the farms lying between the Brandywine and the Concord Pike, and would end near the old house on the Delaware River. This arc would have a radius of 12.81 miles, a length of 11.6749 miles, and its center would be in a SSE direction from New Castle (actually in the Delaware River.) The field work was started in 1892 and finished the following year.



Crownstone Road is Route 8, Maryland (Photo by Jeff Blackwell).



Points and Lines of the Hodgkins' Survey

A-B Arc Line; B-C North Line; C-D Top of the Wedge; D-E West Arc of the Circle; E-H East Arc of the Circle; F-G "S" Curve of the Brandywine. Perry, Lynn *The Circular Boundary of Delaware* (1884; reprint, Pennsylvania, 1934), 576.

Large monuments were erected at the east and west ends of the new line. The monument on the western end is called Arc Stone; the monument on the eastern end is called Terminal Monument. These were made of dark gneiss. Monuments were erected at every half-mile along the line. The half-mile markers are pyramidal frustums eight inches square at the top and made of gray gneiss (a granite-like stone.) On the sides along the line facing toward the Arc Stone there is a "½" mark. The mile markers are pyramidal frustums[14] ten inches square at the top and made of gneiss. A **D** appears on the side facing Delaware, a **P** appears on the side facing Pennsylvania, the number representing the distance in miles from Arc Corner appears on the sides along the line facing toward Arc Corner, and the number **1892** representing the year of the survey is on the remaining side.

It may be of interest that the highest point in Delaware is very close to the Delaware-Pennsylvania boundary and not far from Boundary Monument 17 (17 miles from Arc Corner.) It is called the Ebright Azimuth and the elevation is 442 feet (only Florida has a lower high point, 345 feet). From this point it is a very easy baseball toss to Pennsylvania.

During Hodgkins' survey it was determined that the Arc to the west of New Castle was 12 miles 108 feet from the spire of the courthouse. This

caused a loss to the Calverts of a strip of land of 108 feet by 84 and one-half miles long.

Hodgkins found a Mason and Dixon monument in an old building in Newark, Delaware. The owner of the building presented the monument to the Historical Society of Delaware. Visitors to the Society may see the monument on display in their building on the east side of Market Street in Wilmington.



The Great Seal of the State of Delaware

This seal (the second seal sequentially) stressed the agricultural strength of Delaware and its wording, "liberty and independence," and reaffirms the fact that our country was an entity apart from Great Britain. The added date of 1847 indicates the state's return to this symbolism.

The point on the extension of the Mason and Dixon line which was exactly 12 miles from New Castle is about 2,000 feet to the east of the previously accepted intersection point. This created a horn shaped piece of land that ran from the Mason and Dixon extension to the old hickory stump.

The Commissioners agreed to award the **Horn** to Pennsylvania and the **Wedge** to Delaware. The survey was ratified by the Pennsylvania Assembly in June, 1897, but because the "Delawareans" who lived in the **Horn** were displeased with being "moved" to Pennsylvania, it was not until March, 1921, that Delaware ratified the survey. In June, 1921, the United States Congress also ratified the survey and brought an end to the questions about the Delaware-Pennsylvania boundary.

In 1934 the United States Coast and Geodetic Survey placed a metal disk in the top center of the monument. Stamped on the disk are the letters, **M-D-P Corner**, correctly indicating that the tri-state corner is at the northeast

corner of Maryland and not where Graham had placed the marker.



Maryland-Delaware-Pennsylvania Corner



Sturgeon

A relic of the dinosaur era, the sturgeon is noted for bony plates rather than scales. These fish also produce fine quality caviar.

[12] Mason and Dixon may have used a procedure similar to the one that was used in the re-survey of the north-south line in 1961-1962. The 1960s surveyors placed Station Marks near the Mason-Dixon stones; one was buried about 3½ feet below the surface and the other was placed at the surface.

[13] A monument on Burnt Mill Road marks the location of the stump.

[14] The part of a solid cone or pyramid next to the base that is formed by cutting off the top by a plane parallel to the base.

MORE BOUNDARY DISPUTES

In 1872, a dispute involving boundaries and titles arose out of the arrest of twenty-two New Jersey fishermen for fishing in the Delaware River within 12 miles of New Castle for the famous Delaware shad without a Delaware license. New Jersey took the case to the United States Supreme Court in 1877. After a long time with little action, the suit was finally dismissed without prejudice in 1907.

There were many other incidents involving fishing in the river in the disputed area. Many articles on the incidents appeared in the Salem, New Jersey, and Wilmington newspapers. One of the incidents occurred in 1885, when a group of New Jersey sturgeon fishermen was arrested at Port Penn, Delaware. Their boats and nets were confiscated. They were helped by the Governor of New Jersey who reminded all concerned that the United States Supreme Court had issued an injunction allowing fishing in the river by residents of either state pending the settlement of the boundaries. A United States Marshall went to Port Penn to recover the boats and nets for the Jersey fishermen.

After many meetings and hearings, the two states finally agreed to The Compact of 1905. The preamble of the Compact recited its purpose:

" . . . the amicable termination of the suit between said two States now pending in the Supreme Court of the United States, and the final adjustment of all controversies relating to the boundary line between said States and to their respective rights in the Delaware River and Bay; . . . "

The Compact gave each State the jurisdiction over crimes committed on their sides of the river and each State had jurisdiction over the entire river in the matter of civil processes. Article III provided that the inhabitants of both States should have and enjoy the common right of fishery between the low-water marks on each side of the river.

Article IV provided for a commission to determine the dividing line

between the river and the bay and for the passage of concurrent legislation to regulate the catching and taking of fish in the Delaware River and the Bay.

Article VI protected the oyster industry as then or thereafter carried on under the laws of either.

Article VIII provided that nothing contained in the Compact shall affect the territorial limits, rights or jurisdiction of either State, in or over the Delaware River, or the subaqueous soil thereof . . .

The Compact was designed to protect the fishing rights of the residents of both States, but clearly it had nothing to do with the boundaries. The adoption and implementation of the Compact seemed to calm the waters on the Delaware.

Monuments marking the division between the Delaware River and the Bay were erected in 1906. On the Delaware side, the monument was placed at Liston Point; on the New Jersey side the monument was placed a short distance below the mouth of Hope Creek. The monuments were made of granite and projected about 15 feet above the ground.

Over the years, the shorelines of the river and bay eroded and the monuments fell into the waters of the river and bay. In 1983, after the strenuous and continued efforts of a Salem County resident to have the monuments replaced, it was decided to recover and erect the monuments in suitable positions near to the original positions. The Delaware River and Bay Authority assumed the responsibility for the work. The monuments were hauled out of the river and taken to Wilmington to have the barnacles and algae removed. Earth was excavated at the new positions above the high water marks and away from the edges of the river and bay. Steel sheets used in building cofferdams were driven into the earth forming a 15 feet square. Then many yards of Portland cement concrete were poured into the excavation. Square holes just large enough to accept the monuments had been formed in the top of the concrete masses. With appropriate ceremony, the monuments were installed.



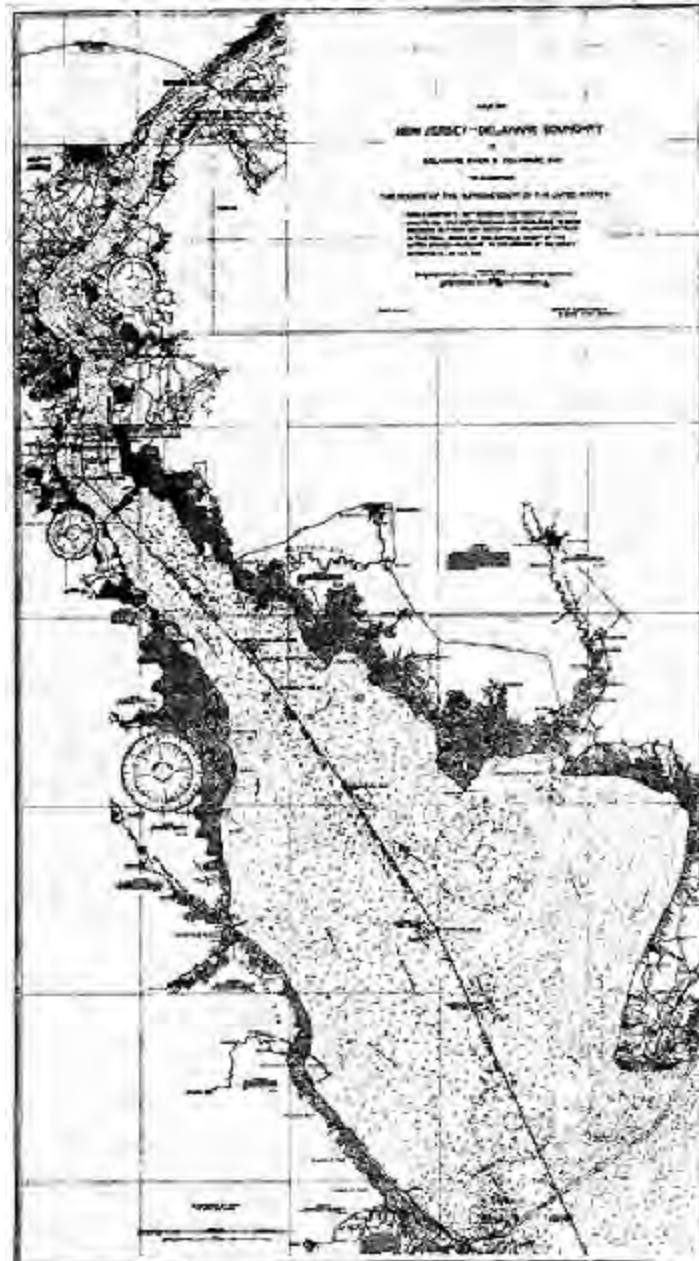
Delaware River-Bay Monument in 1983

In 1929, the development of the oyster industry in the Delaware Bay revived the dispute over the boundary between Delaware and New Jersey. A suit was entered in the Supreme Court at its October 1929 term in an attempt to obtain a final settlement of the long-standing controversy. Although the total area involved was only about 22 square miles, it included valuable oyster beds and was therefore of importance to New Jersey. New Jersey's bill of complaint and Delaware's answer contained much historical matter relating to the two States. Some of the materials were obtained in London. In 1930, the Court appointed William L. Rawls of Baltimore to be a Special Master to handle the case. He received documents and conducted hearings in Wilmington, Trenton, and Baltimore through the summer of 1931. He presented his recommendations on October 9, 1933, during the October term of the Court.

The Special Master recommended that "within the twelve mile circle, the

river and the subaqueous soil thereof up to low water mark on the easterly or New Jersey side will be adjudged to belong to the State of Delaware, subject to the Compact of 1905. Below the twelve mile circle, the true boundary between the complainant and the defendant will be adjudged to be the middle of the main ship channel in the Delaware River and Bay." He further recommended that "the costs of the suit will be equally divided."

New Jersey lost its claim to the river within the twelve-mile circle but won its claim to the eastern half of the Delaware River below the twelve-mile circle and the eastern half of the Bay. Delaware had claimed the geographical center of the river; New Jersey had bounded her title by the Thalweg.[15] Both States objected to the Master's report and announced that they would file their exceptions to the Court. Delaware objected because it would lose jurisdiction over valuable oyster beds in the Bay. New Jersey objected to the recommendation that within the twelve-mile circle around New Castle, the river up to the low water mark would belong to Delaware.



Map of the New Jersey - Delaware Boundary

Mr. Justice Cardozo delivered the opinion of the Court on February 5, 1934. The Decree ordered that the report of the Special Master be approved. It included a description of the boundary line in the river starting at the extension of the compound curve of the Delaware-Pennsylvania boundary across the river to the New Jersey shore and continuing down the eastern river edge and then down specified courses to a point near Brandywine Shoal

Light. (A map showing the boundary was annexed to the report.) Beyond this point the boundary remains undefined.

Because almost all of the Delaware-New Jersey boundary (within the twelve-mile circle) would be the low water mark of the river on the Jersey side, it would be impractical to place monuments at the actual boundary. Five reference monuments were placed above the high water marks and away from the edge of the river. The monuments were made of Portland cement concrete in the shape of pyramidal frustums with a square cross-section and 10 inches by 10 inches at the top. The monument on the tip of Artificial Island was placed on the twelve-mile circular boundary. Lt. J. H. Brittain of the U. S. Coast and Geodetic Survey was responsible for installation of the monuments.

A Wilmington newspaper reported on the Court's decision. The final paragraph of the news article stated "probably the next step in this litigation will be consideration of the Attorney General's office in Delaware towards taking jurisdiction and taxing piers and wharves that extend into the Delaware River from the New Jersey side at Pennsville and Penn's Grove." Delaware tax assessors did attempt to assess taxes on the piers and wharves but were told "if you do we will want police and fire protection for those properties." The assessors were not heard from again.

Another episode involving a pier occurred in January 1957. There was a gambling raid on a Penns Grove pier on the Delaware River. After being arrested by Penns Grove police, a man pleaded *non vult*^[16] in Salem County Court. He later appealed his sentence claiming that the State of New Jersey and Salem County did not have jurisdiction since Delaware owns the river in the Penns Grove area.

In February 1934, the Killcohook Migratory Bird Refuge was created by President Franklin Roosevelt. The real purpose of the refuge was as an area for disposing of dredging spoils from the Delaware River bottom. The spoils were placed on the land and then out into the river to the west of the 1934 mean low water mark. Eventually this area drained and became solid ground. And it became a part of Delaware because whenever man changes the topography, boundary lines do not change.

The place is now known as the Killcohook Wildlife Area and the Killcohook Disposal Area and it is one of the areas where it is possible to

drive from New Jersey to Delaware without crossing water.[17] The other place is the tip of Artificial Island. There it is possible to know exactly where the line is because the boundary monument is still in position, but because it is broken and could be lost a reference monument was placed nearby. These two areas have created complications for Fish and Game Officers of both states because the boundary is not defined on the ground. The dispute over fishing for shad in the Delaware River was (temporarily) settled in May 1938. Delaware allowed New Jersey fishermen to acquire a Delaware license for \$50.



American Shad

[15] Thalweg is the middle of the chief navigable channel of a waterway that constitutes a boundary between two states.

[16] No contest.

[17] To cross the boundary line drive to Fort Mott and then toward Finns Point National Cemetery. Before arriving at Finns Point, there is a dirt road to the left and on that road is a sign: *Killcohook Wildlife Management Area, State of Delaware*. Drive or walk past the sign and you are in Delaware!

REVISITING POST MARK'D WEST

In 1952, William T. Mahoney became interested in the Mason and Dixon survey, particularly as it affected the boundaries of Delaware. He developed a special interest in the location of the Post Mark'd West. With the help of Dr. Thomas D. Cope and Dr. H. Clay Reed he found the location in a woods about three-quarters of a mile northeast of Milford Crossroads. After getting permission from the property owner, Mr. Mahoney obtained the services of surveyors who were able to locate the precise position of the Post. The position was marked by a small post on May 22, 1952.

On June 19, 1953, through the generosity of Mr. S. Hallock duPont, the property owner, a permanent marker was unveiled at the spot. The area is now part of the White Clay Park area and is accessible to the public.



Replica of the "Post Mark'd West"



Middle Point Monuments and Pavilion, 1972 (top) and 2000 (bottom)

MIDDLE POINT PAVILION

The Middle Point monument at the southwest corner of Delaware is the only remaining monument of its size and markings. (As previously noted, the one like it at the northeast corner of Maryland was lost in the 1840s.) Efforts to preserve it were started in 1953 and completed in November, 1961. The two owners of the property at Middle Point, Mr. George E. Wright and Mr. Harvey Ellis, donated land for the erection of a small pavilion that was built through the efforts of the Daughters of the American Revolution. A dedication plaque made of brass was placed on one of the brick supports. The plaque is now missing and presumably stolen. Sometime after 1972, vandals attempted to remove the monument and broke it off at the base, but neighbors became aware of the theft and reported the activity to the State Police. The monument was saved and then stored in a safe place until it could be restored to its original position.

In 1985, surveyors from Delaware, Maryland, and the National Geodetic Survey took great pains to carefully and exactly place the Middle Point monument at the correct position. After long and tedious instrument sightings on surrounding reference markers, the surveyors were satisfied that the work was accurate. Representatives from each state then agreed to the position of the restored monument.

Originally the pavilion protecting the monument had a low iron fence, but now it has fencing from the ground to the eaves of the roof to protect the monument from vandalism. The pavilion also protects two other colonial monuments. One is the monument placed two feet eight inches to the north of the middle point. The other is Transpeninsular Line marker #25. This marker had been moved to the south of its original position because of a road built in that area. After that time it had been severely damaged and so the remains of it were placed in the pavilion at Middle Point for safe-keeping.



Close-up of Middle Point Monument



Middle Point Monument

From left back line: 1) Middle Point Monument, 2) Transpeninsular Monument #25, 3) original monument placed by colonial surveyors. Front stone placed by a local resident. It has no historical significance.

There is one unmarked stone in the pavilion. Its presence was a mystery until the day of the restoration of Middle Point monument. A boundary explorer informed me that his grandfather had found the stone, thought it resembled the stone north of the Middle Point monument, so he placed the

dark gray stone there. It has no official significance!

The Delaware-Pennsylvania Boundary on U.S. Route 202

A special look was taken of the Delaware-Pennsylvania boundary in 1960. A fatal automobile accident occurred on Route 202 in August of that year. The exact location of the boundary had to be determined in order to decide which State would have jurisdiction. The services of the Coast and Geodetic Survey were employed. They erected towers at monuments along the line, ran a curved line across the highway and then placed permanent markers at ground level immediately adjacent to either side of the highway and marked a line across the face of the highway.

Recovery and Restoration of the Delaware-Maryland Boundary Monuments

In 1954, officials of Delaware and Maryland agreed on a plan for the restoration and maintenance of their common boundaries. The first re-survey was made of the Tangent Line, Arc Line, and North Line by a team of the United States Coast and Geodetic Survey. Field operations were started in September 1961 and completed in March 1962. Working conditions were difficult because of marshy areas and tall timber. Tall towers were used for sight lines over obstacles such as trees and buildings. Some monuments were missing so attempts were made to locate them and to put them in the proper position. For those that could not be found, substitute monuments were used. These were made of Portland cement concrete with a square cross section and a bronze marker in the center of the top. At the completion of the survey of the Tangent Line, a graph was made of all of the locations of the monument. A smooth curve through the graphed locations indicated a maximum displacement to the east of 18 feet from the theoretical line.[18] It was also determined that any monument more than four feet off the theoretical line had probably been moved after Mason and Dixon placed them in position almost 200 years earlier. The modern surveyors gave very high marks to the remarkable pair.

On April 27, 1971, the Delaware legislature passed a law giving the Governor the authority to appoint a 3-member commission "to act in conjunction with the Secretary of the Department of Natural Resources and Environmental Control and the Director of Historical and Cultural Affairs in negotiating" final settlements of boundary questions. A boundary commission has been in place since that time and its members serve at the pleasure of the governor.

In 1973, a cooperative agreement between the States of Delaware and Maryland and the National Geodetic Survey for a re-survey of the Transpeninsular Line was signed. The work was started the last week of January, 1974, and was completed during the first week of June, 1974. Once again, towers were used for observations.

All of the original monuments were recovered except the 30-mile monument. The 25-mile monument had been moved about 13 feet south of its original position during highway construction in the 1950s and an iron pin was placed in a small iron box in the position of the original monument.

At the strong recommendation of the National Geodetic Survey the two states decided to mark the boundary at every mile. As with the Tangent Line replacements, the markers were made of Portland cement concrete with a square cross section and with a bronze marker in the center of the top. It was not always possible to place the monuments at exact mile positions so appropriate accommodations were made. Some positions were in roads so the monuments were placed in small sub-surface chambers. One monument had to be placed 18 inches below ground level because the position was located in a farm field and it would have to be moved too far east or west to get it out of the field.

A ceremony to commemorate the completion of the north-south and east-west surveys was held on June 26, 1978, the 214th anniversary of the survey begun by Mason and Dixon on June 26, 1764. A bronze plaque was placed at the ceremonial site, a point on the north-south boundary where the Mason-Dixon Line intersects with Route 404. It is at the base of a fire observation tower.



Commemorative Monument for Completion of 1961-62 and 1974 Re-surveys

This monument commemorates the completion in 1976 of the re-survey by the U.S. Department of Commerce of the north-south boundary between the state of Maryland and the state of Delaware known historically as the Mason and Dixon Line. The original limestone markers, some of which bear the

armorial shields of the Calvert (Lord Baltimore) and Penn families, were established by the original survey made by Charles Mason and Jeremiah Dixon in 1764.

In 1976, Congress passed the Coastal Zone Management Act Amendments. This required the coastal states to establish administrative boundaries on the continental shelves. Nothing has been done to establish the required boundaries probably because oil exploration off the coast was halted.

More Fishing Wars

The fishing wars resumed in 1977 when Delaware officials decided to enforce the State's fishing regulations. Their decision was based on a 1977 opinion issued by the Delaware Attorney General's Office. The opinion claimed that the Compact of 1905 was invalid because each State enacted different fishing regulations. But, apparently, the real reason for the opinion was to help to protect Delaware fishermen in their efforts to take shad that were, and are, in decreasing numbers in the river. On April 4, 1985, the first day of shad fishing that year, a Salem County, New Jersey, fisherman was arrested by the Delaware Marine Police for fishing on the river without a Delaware fishing license. His boat, nets, and fish were confiscated. He was fined \$500 and Court costs and then his boat and nets were returned. This incident created a storm of protests in Salem County. A New Jersey Assemblyman representing the County complained, "Tell me another river in the world that is a boundary river where the boundary is not in the middle of the river." If he had researched his question he would have discovered that New Jersey and Pennsylvania exercise concurrent jurisdiction over the Delaware River. Maryland has title to the Potomac River, Kentucky has title to the Ohio River, Georgia has title to the Chattahoochee River, and New Hampshire has title to the Connecticut River. Efforts were made to allow the Salem County fishermen to continue to fish legally on the river within the 12-mile circle. A commission to work with Delaware officials was established by the New Jersey Governor. The hope of the Jersey fishermen was that the dispute could be resolved by the following spring. One of the fishermen said that he didn't "care if they move the boundary, I just want to catch my fish, stick them in my freezer, and give some to my neighbors." In March, 1990, the Delaware Legislature amended the fishing laws of the State to allow seven named New Jersey fishermen to take shad from "only that portion of the Delaware River, east of the center line of the shipping channel, and north of 39 degrees 30' north latitude. The fee shall be \$150." Those fishermen had to prove that they had previously fished for shad in the river. Each must renew his license every year by April 1 or lose the right for a license. Only five of the seven continue to fish for the prized shad.

Re-inspection of the Delaware Boundary Monuments

From 1982 through 1985, a former resident of Delaware made an inspection of all of the 179 monuments that marked the boundaries of the state. He submitted a report to the Delaware Boundary Commission. The Commissioners then arranged with corresponding officials in the bordering states to recover or replace missing monuments and to repair broken monuments. The restoration of the Delaware-Maryland monuments was completed in 1987 and the restoration of the Delaware-Pennsylvania monuments was completed in 1991. The work on the six Delaware-New Jersey monuments has been completed and the documents are expected to be signed in the fall of 2000.



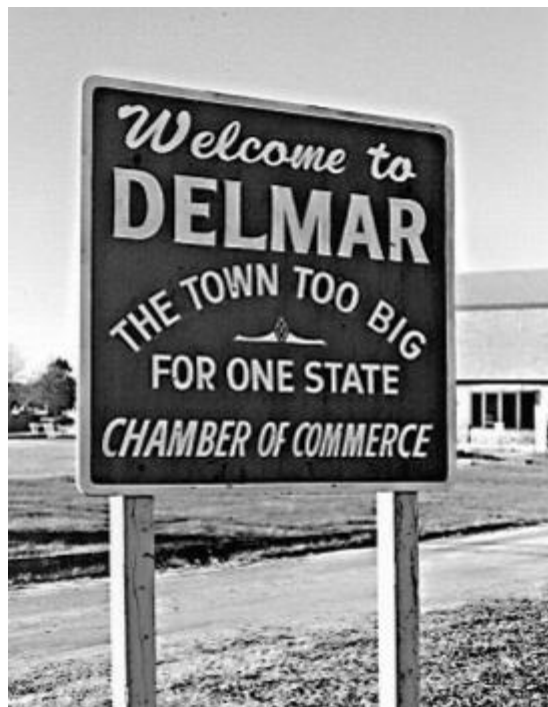
Delaware State Seal, 1793

The crucial roles of the citizen soldier and the persona of the farmer were reinstated in the fourth seal, so that the second and the fourth were identical. Today the seal is the same. The dates have changed to 1704, 1776, 1787.

Unique Boundary Situations

Delaware's boundary lines create some unique situations for some of its residents. Some of the lines run through houses and then questions arise about the payment of taxes, where the children go the school, and where the dwellers should vote. An article in the March 4, 1990, issue of the *Wilmington Sunday News Journal* gave many examples of these situations.

One of them is a town on the southern boundary line of Delaware. According to a sign just to the west of U.S. 13 it is "A Town Too Big for One State." Actually it is two towns: Delmar, Delaware, and Delmar, Maryland. The boundary line runs through the middle of the main street (route 54).



Delmar sign

Before the 1950s the two towns acted separately, but then the residents worked out agreements to share facilities and services. The elementary school students in both towns attend a school on the Maryland side of the line; the junior and senior high school students attend schools on the Delaware side. The water tower is in Delaware; the sewer plant is in Maryland. The fire

company in Delaware serves both towns; the police department in Maryland serves both towns. The Post Office that serves both towns is in Delaware but has two ZIP Codes: 19940 for Delaware and 21875 for Maryland.

The Mason Dixon Line also passes through the town of Marydel. The fire company is in Delaware and serves both towns. No other services are shared.



Maryland State Flag



Delaware State Flag



An undedicated boundary disk

[18] For only the second time, the Calverts got an advantage but it hardly made up for the other losses.

SUMMARY

The Transpeninsular Line begins at Fenwick Island and ends at Middle Point. There are 35 monuments on the line. Original monuments placed in the survey of 1751 are at 0, 5, 10, 20, and Middle Point.

The Tangent Line begins at Middle Point and ends at Tangent Point. There are 82 monuments on the line (not including Middle Point); 76 are original Mason and Dixon monuments.

The Arc Line begins at Tangent Point and ends at the intersection with the North Line (Intersection Stone 2). Four original unmarked stones (similar in shape to the original stones on the Transpeninsular Line) and one Mason and Dixon monument mark this line (not including the Tangent Stone.)

The North Line begins at Intersection Stone 2 and ends at the Northeast corner of Maryland (Maryland-Delaware-Pennsylvania Corner [MDP Corner]). There are five monuments on the line. Three are Mason and Dixon monuments; Intersection Stone 2 is a triangular granite stone with a letter representing each state on one of the three faces and the MDP Corner is a square granite stone. Graham placed new monuments at these two points in 1849.

The Delaware-Pennsylvania Line begins at the Tri-State Monument then goes east to Arc Corner then to terminal monument and just west of the Delaware River and then ends at the middle of the river. The line then becomes the Delaware-New Jersey line and ends at the low water mark on the New Jersey side of the river. There are 46 monuments on this line.

The Delaware-New Jersey boundary line on the New Jersey side of the river begins at the end of the circular Delaware-New Jersey boundary line across the river, continues south along the edge of the river, then across Killcohook Wildlife Management Area, and then continues along the edge of the river until it meets the east end of the twelve mile circle south of New Castle. It has five reference monuments and one boundary monument. The line then goes west along the circular line until it ends in the middle of the river. In 1986 all of the original monuments were either missing, out of

position, disintegrating, or located in unacceptable positions. Monuments 1, 2, 3, 5, and 6 were replaced with 5-inch square Portland cement concrete posts with aluminum disks in the tops stamped with the reference number. An attempt was made to use a 5-inch square concrete post for reference monument #4, but it was later replaced with a stainless-steel 3-D rod that was driven to a depth of refusal of 57 feet.

The Delaware Geological Survey

The Survey provides information about the Delaware boundaries on its Web Page located at: www.udel.edu/dgs/dgs.html. After finding the page click on DESIC, Earth Science Information button, then cursor down to State Boundaries. That part of the Web Page offers the following:

Support of Delaware State Boundary Commission

Delaware's State Boundaries

State Boundary Monument Data Base with Clickable Map

There are descriptions of all 179 Delaware boundary monuments. This information along with topographical maps, outdoor skills, determination, persistence, and diplomatic skills in dealing with property owners will enable almost anyone interested in the monuments to find them. (A boat will be useful in finding two of the monuments on the New Jersey side of the river).

The Delaware Geological Survey is located on the campus of the University of Delaware. It provides many services including the sale of United States Geological Survey maps. To reach the Survey, you may call at (302) 831-2833, e-mail at delgeosurvey@udel.edu or use the Web Page.

A TOUR OF THE DELAWARE BOUNDARIES

The Delaware Heritage Commission occasionally sponsors guided tours of Delaware's Mason and Dixon line. Generally these are scheduled for November. For information call the Commission at (302) 577-5044.

We begin this tour at the Fenwick Island Lighthouse and move along the Transpeninsular Line. The Initial Monument is located just south of the base of the lighthouse. It has the shields of the Coats of Arms of the proprietors on the faces. The shields were recut in 1952 by the State of Delaware. The stone has been whitewashed.



Initial Point on the Transpeninsular Line, Pennsylvania-Delaware Side



Initial Point on Transpeninsular, Maryland Side

E-W #5 is located next to a goat pasture near Williamsville. The monument was placed there in 1751, but looks like it was placed there yesterday. The monument is in wonderful condition and the shields of the Coats of Arms are plainly visible.



Maryland Side of #5 Transpeninsular Line

E-W #10 is located a short distance east of Delaware Route 113 and is at the south part of Selbyville. The State of Maryland has created a mini-park around the monument and has erected an historical marker.



Maryland side of Transpeninsular Line #10

E-W #14 is located in the Pocomoke swamp almost a half-mile due north of a dirt road. To my knowledge, it has been seen only once since its installation in 1976. It is probably the most difficult to find of all 179 monuments.



Transpeninsular Line #14

There is no monument E-W #16. Because of the positions selected along the line and, because they could not always be placed at the exact distances from the Initial monument, it was decided to not attempt to place a #16 monument.

E-W #18 is located in a field, 18 inches below the surface. It couldn't be moved to the east or west to another location because it would be too close to the adjacent monuments. Permission was obtained from the owner of the

property to "bury" the monument below plow depth.

E-W #20 is located on the grounds of Line United Methodist Church. The shields are almost completely worn away. It is a 1751 monument.



Transpeninsular Line #20

E-W #28 is located immediately south of a park in Delmar. It is in a sub-surface chamber that has a lid without a name on it.



East - West #28

Middle Point is located in a pavilion north of Maryland Route 54. The

monuments there were described on pages 62 and 63 and photographs of that monument are included thereafter.

Now we turn north to the Tangent Line. One of the easiest monuments to find was Tangent Line #5 but, for the second time, it has been taken from its position immediately east of a dirt road. It was found and replaced during the 1961-62 re-survey. About one year ago it was taken again. Its removal was reported to the state police of the two states but, as of this time, it has not been found.



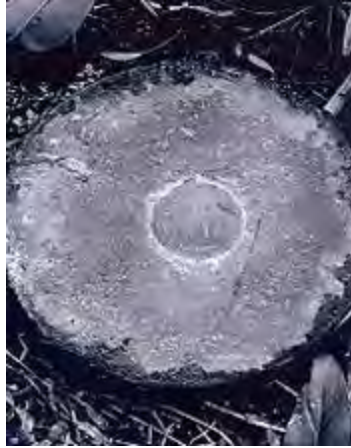
Tangent Line #5, Delaware side



Tangent Line #5, Maryland side

Mason and Dixon placed Tangent Line #7 about 30 feet north of the north edge of the Nanticoke River. Surveyors could not locate it during the 1961-62 re-survey. It was thought that the original monument had sunk into the

swampy ground. It was replaced with a Portland cement concrete monument that is 12 inches in diameter and projected about 12 inches above the ground. In 1984 it projected 4" above the surface; now it is even with surface!



Tangent Line #7

Tangent Line #12 is on the north side of Delaware Route 20/Maryland Route 392 in Reliance. The top is severely eroded. The monument was originally located about 300 feet to the south. A road was built along the boundary line and this monument was buried in the road. Oolitic limestone is water-soluble and so, while in the road, it was severely damaged. In 1961-62 it was excavated and moved to its present location.

Tangent Line #15 is about one mile north of Oak Grove and is just west of the road. Wooden posts were erected around the monument.

Tangent Line #17 is in a field north of Delaware Route 18/ Maryland Route 318 between Federalsburg, Maryland and Atlanta, Delaware. On one side is an **M**; on the other side are an **M** and a **P**. My guess is that the carver made an **M** in one side and then turned the monument over at the close of the work day. On the next day, he made another **M** and then, when he realized his mistake, he carved a **P** over the **M**. Keep in mind that it is only the author's guess!



Tangent Line #17

Tangent Line #25 is located about a mile south of Hickman immediately to the east of the road. It has the shields of the Coats of Arms of the Calverts and the Penns.

Tangent Line #26 is located in the village of Hickman. The top is missing.



Tangent Line #26

Tangent Line #37 is located to the west of Schultie Crossroad.

Tangent Line #40 is located in the Central Delaware Landfill. Obtain permission and directions at the office of the landfill.

Tangent Line #42 is to the west of Mud Millpond.

Tangent Line #45 is in Marydel. The monument was taken to Chicago for the Columbian Exposition in 1893. It was returned, stored in a state highway garage, and then "lost." The residents of the town petitioned the states to have it returned and to have it placed at a safe location away from the highway. The monument was found and restored to the requested position in Marydel. A mini-park was created around the monument and the State of Delaware erected a historical sign at the site.



Tangent Line #45, showing Maryland side



Enlargement of Tangent Line #45, Maryland side

Tangent Line #49 is located in a swampy and wooded area north of Templeville. In 1984 the top was found on the ground. Over the years the limestone monument eroded because of the rise and fall of the water in the swampy area and the top had broken off at the base. A monument restorer cemented the two parts together and added some Portland cement concrete to make the monument look like the original.



Tangent Line #49

Tangent Line #53 is located west of Pearsons Grove in a cultivated field. The owners of the land erected a small grape arbor over the monument to protect it.

Tangent Line #55 is located slightly south of Delaware Route 6/Maryland Route 291. A Maryland Historical sign was erected at this location.



Tangent Line #55 showing the Armorial Shield of the Penn Coat of Arms.

Tangent Line #58 is located near Delaney Corner immediately north of Delaware Route 42/Maryland Route 313. Tangent Line #63 is north of Coldwell Corners and located on the west side of the road. It has been damaged by farm equipment so now it is protected by I-Bars. Tangent Line #71 is on the south shoulder of Churchtown Road. The monument had been located in a field to the south of the road. A jogger had run past the

monument as a part of his daily run and one day noticed that it was missing. He reported the disappearance to the state police who made a successful search for the stone. Later it was placed on the shoulder of the road and just out of a cultivated field. I-Bars were placed around it. Tangent Line #74 is along a fence line in the Bethel Cemetery that is south of the Chesapeake-Delaware Canal.

Tangent Line #79 is located to the east of Elkton and on a berm on the north side of the westbound lanes of US Highway 40. When the highway was dedicated years ago, the monument was seen about 300 feet to the south of the highway. The next day the monument was gone. Many years later a monument with shields was then placed on the berm. The monument had been in possession of the Easton Historical Society and was believed to be Tangent Line #10, which had been moved because a road was built in its location.



Tangent Line #79

In 1987 the author received a letter from a resident on Smalleys Dam Road. In the letter he stated that "one of the border monuments you want is at" a residence on Smalleys Dam Road. He was concerned that the owners of the property where the monument was located were trying to sell their

property to a developer and that the monument would be lost. The next day, a Saturday, the author went to the address given, the monument was viewed from a distance, and then permission was granted to see it. After receiving permission, a close inspection was made and it was determined to be a Mason-Dixon monument.

On Monday the information was reported to Sandy Schenck. An attempt was then made to retrieve the monument, but the property owner refused. It took a letter from the Office of the Delaware Attorney General to change his mind.

The residence on Smalleys Dam Road was a short distance from where the #79 monument was located on the day of the highway dedication. It is believed that the monument found on Smalleys Dam Road was Monument #79 and so, sometime shortly after it was recovered, it was placed on the berm on US Highway 40.

Tangent Stone is located immediately to the east of the Stonegate Apartments that are located at 1720 Elkton Road between Newark and Elkton. Permission to see the stone must be obtained from the manager in the office of the complex.

The stone is located within a fenced area. There are two stones: the original placed by Mason and Dixon and the 1849 stone placed by Col. Graham.



Tangent Stones

The smaller one is the Mason-Dixon Monument; the larger one is the Graham Monument.



Tangent Stones in a protective enclosure.

Arc Stone #1 is located in a sub-surface chamber located in the southbound lanes of Delaware Route 2/Maryland Route 279 and near Pat's

Liquor Store. Obtain permission to park in the store's parking lot and then look out on the road for the subsurface chamber cover. Observe safety precautions; the road is a busy highway!



Arc Stone #1

North Line #84 is located to the east of Valley Road and north of Barksdale Road. It is next to a fence line and in an open field south of some unusual sculptures North Line #85 is located at the corner of a house on Spring Valley Road located to the west of the Head of Christiana Presbyterian Church, 1100 Church Road, Newark. Obtain permission from the owners of the house before trying to see the monument.



Delaware-Memorial Boundary Monument

In 1963, the Delaware and Maryland portion of I-95 was dedicated by President John F. Kennedy. A new monument was placed on the boundary line between the north and southbound lanes of I-95. About one week later President Kennedy was assassinated and the highways were renamed in his honor.



North Line #85 in 1984.



North Line #85 in 1999.

When I first found this monument the orientation did not seem right. Sandy Schenck was with me on the next visit. We made measurements from the station mark and reference markers to the monument. None of them was correct so we made an inspection of the grounds. At a corner of the house, we found a square depression. We made measurements from the station mark and reference markers to the depression. Those measurements were correct.

On April 8, 1986, Sandy Schenck, Ralph Poust, and R. Williams did a preliminary survey at North Line #85 to reestablish the 1961 position of the monument. They dug around the position of the monument in 1961 and found a plastic tube with the following letters printed on it: "Milford Chronical Publishing Co., Printers and Publishers, Milford, Delaware." The tube was a part of an old key chain. One end of the tube was threaded and when opened they found a piece of paper that was waterlogged and difficult to read. The following was discernible:

To whom it may concern:

We the undersigned, on this day of Feb. 2, 1950 at 11:04 P.M. do hereby confess and swear that we excavated and surveyed this monument of the original boundary line

between Maryland and what was formerly Penn. This being the original monument placed here by Mason and Dixon in the 18th century, we found it to be in excellent condition considering the weather conditions and the length of time since its erection.

*Signed,
W. Richard Foster, Jr. C.E. '52
Harry E. Mayhew, Jr. M.E. '53*

They were fraternity pledges fulfilling a part of their initiation. At the time they found the monument it was in a cornfield.

M-D-P Corner (Tri-State Marker which sometimes is called the Wedgestone.) This monument is located east of Route 896 (New London Road) north of Newark. Before attempting to visit the site, permission must be obtained from the Delaware property owners or the Maryland property owners.

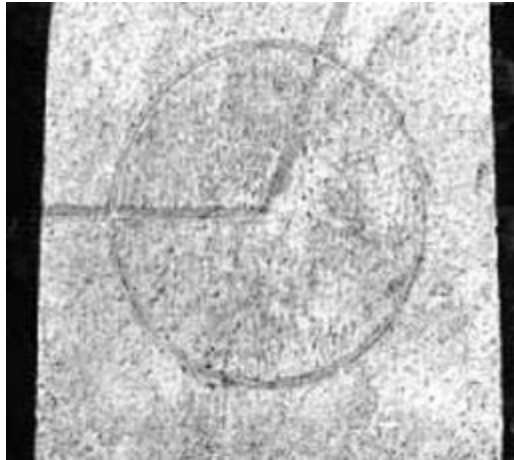


Tri-State Monument, Maryland-Delaware-Pennsylvania Corner

On Thanksgiving Day each year, a ceremony is held at the stone. It is a non-religious ceremony, but truly one of thanksgiving. It begins with a gathering of invited friends and relatives at the home of the owners of the property on the east (Delaware) side of the North Line. A brass ensemble plays a few tunes, a Pilgrim couple appears, and the male Pilgrim reads a proclamation. Then everyone proceeds down a somewhat steep hill to the Wedgestone. The guests are welcomed, poems are read, thanksgiving messages are given, sometimes talks on the history of the marker are given, and after about one-half hour everyone trudges up the hill to the beginning place. There, hot coffee, cider, cookies, and cakes are offered to the guests who are feeling the usually cold weather, but are warmed by the good feelings of the occasion.

Now we move east to the beginning of the Delaware-Pennsylvania twelve-mile circular boundary line. The Arc Corner monument is located in White Clay Creek State Park immediately to the south of Hopkins Road. Care should be taken here because of the narrow road and fast moving traffic.

Parking can be a problem. Waterproof shoes may be needed.



Top of Arc Corner Monument on Delaware-Pennsylvania Circular Boundary



Arc Corner Monument, Delaware side.

Delaware-Pennsylvania #3 is located at the Merestone Development on Yeatmans Mill Road. It had been lost for years, but just before the houses were to be built in the area a resident who lived nearby made a final effort to find it. He was successful and the monument was returned to its original position.



Delaware-Pennsylvania #3

On March 14, 1991, a ceremony to commemorate the completion of the restoration and repair of boundary monuments on the Delaware-Maryland lines and the Delaware-Pennsylvania lines was held at the site of Delaware-Pennsylvania #3. The Governor of Delaware was the featured speaker. It was a snowy, rainy day but a proud day for the Delaware Boundary Commission that had spearheaded the restoration work.

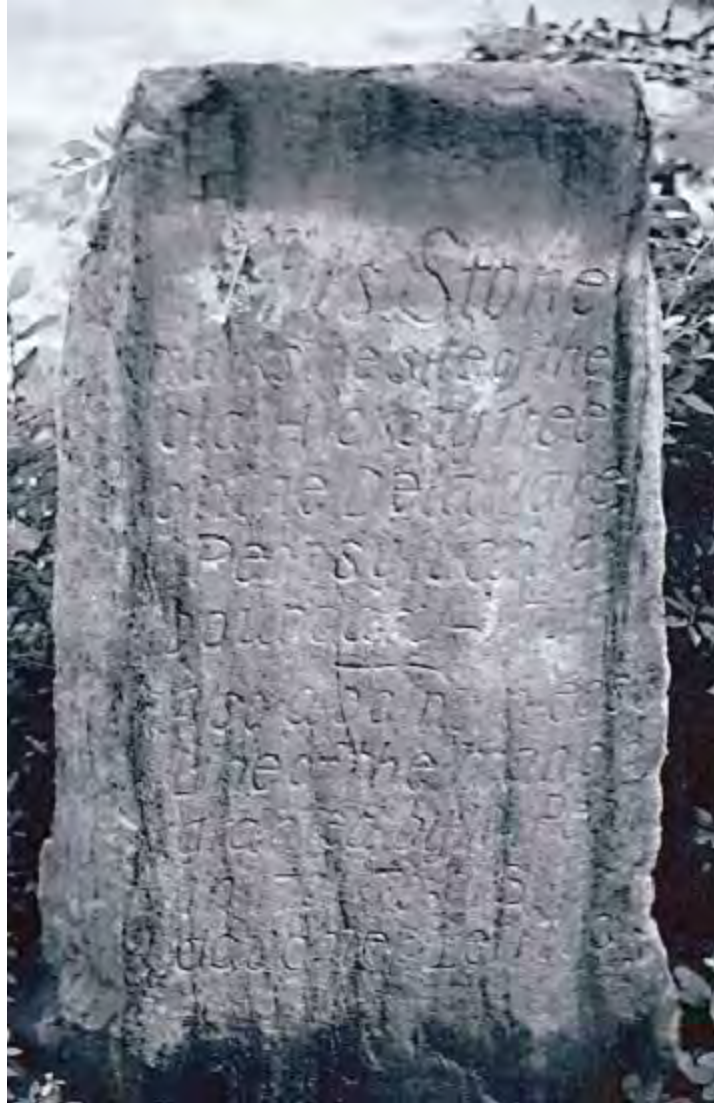
Delaware-Pennsylvania #6 is located just to the northeast of Route 41 in a small landscape center.

Delaware-Pennsylvania #10½ is located south of Burnt Mill Road at the entrance to a new development. From Route 52, turn west onto Burnt Mill Road and travel for about one and one-quarter miles. The road turns about 45 degrees to the right. On the left is the entrance to the new development and the monument.



Delaware-Pennsylvania #10 ½

On the road to Delaware-Pennsylvania #10 ½ is a monument to a hickory tree stump, the one used to establish parts of the arcs of a twelve-mile circle. It is about one-half mile from Route 52 and is on a steep berm on the left of the road. Special care should be taken because the road is narrow and there are no shoulders.



Hickory Tree Stump Monument

Engraved: This stone marks the site of the old Hickory Tree on the Delaware Pennsylvania boundary in 1701. Also a point in east line of the manor granted by Wm. Penn in 1701 to his daughter Letitia.

Delaware-Pennsylvania #11 is about 30 feet north of Burnt Mill Road and about one-quarter mile from Route 52. It is in excellent condition.



Delaware-Pennsylvania #11

Delaware-Pennsylvania #16 is located on the south edge of State Line Road about 75 feet from the west edge of US 202. The top of the monument is level with road surface.



Delaware-Pennsylvania #16

Delaware-Pennsylvania #17 is located almost immediately behind a stone house that serves as the headquarters for the Winterset Farms trailer park that is west of Ebright Road. Here it is possible to see how a boundary line runs through a building. Near here is the highest point in Delaware.

Terminal Monument is located within the Sun Oil Company refinery at Marcus Hook. Only with special permission can this monument be seen.



Terminal Monument

The reference monuments along the New Jersey shore of the Delaware River are difficult to visit. Delaware-New Jersey 3 and 5 require the use of a boat and knowledge of the tides so that the boat does not get stuck in the mud.

Delaware-New Jersey #4 is at the mouth of the Salem River as it empties into the Delaware. To reach the monument go to the north end of Slape Avenue and walk north on the beach to a small tree at the highest area and then look near the tree for a small monument. It is best to go at low tide and when there is little wind.



Delaware-New Jersey #4

A final comment: Please, remember that it is important to respect private property. Always ask for permission to visit on someone's land. Tell them who you are, where you live, and why you want to go on their property. They may help you find the monument. Happy hunting!

REFERENCES

The sources listed below were used in the preparation of this history.

Bayliff, William H., *The Maryland-Pennsylvania and The Maryland-Delaware Boundaries*, Maryland Board of Natural Resources, Annapolis. Second Edition, July 1959.

Cummings, Hubertis M., *The Mason and Dixon Line Story for a Bicentenary 1763-1963*, Bureau of Land Records, Department of Internal Affairs, Commonwealth of Pennsylvania. March 1, 1961.

Graham, J. D., *Col. Graham's Report to the Commissioners*, Washington, February 27, 1850.

Hodgkins, W. C., Part I --- A Historical Account Of The Boundary Line Between The States Of Pennsylvania And Delaware. Part II --- Detailed Account Of The Work On The Pennsylvania-Delaware Boundary Line Executed By W. C. Hodgkins, Assistant. United States Coast and Geodetic Survey, 1893

Lunt, Dudley, *The Bounds of Delaware*, The Star Publishing Company, Wilmington, DE, 1947.

Mahoney, William T., The Post Mark'd West on the Mason-Dixon Survey, *Delaware History*, VI (September 1955), 299-307.

Mason, Charles and Jeremiah Dixon, *Journal of Daily Observations*, November 15, 1763, to November 14, 1768. A transcript of the Journal was published by The American Philosophical Society, Philadelphia, PA, 1969.

Meade, Buford K., *Report on Surveys of Delaware-Maryland Boundaries*, U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Survey, 1982.

Morris, Thomas C., The History of the Boundary Disputes Leading to the Settling of the Boundaries of the State of Delaware, Special Collections, University of Delaware, July 6, 1939.

Perry, Lynn, The Circular Boundary of Delaware, Reprinted from Civil Engineering, November 1934.

Report of the Special Master, In the Supreme Court of the United States, October Term, 1933. State of New Jersey, Plaintiff vs. State of Delaware, No. 13, Original.

Russ, William A. Jr., *How Pennsylvania Acquired Its Present Boundaries*, The Pennsylvania Historical Association, The Pennsylvania State University, University Park, Pennsylvania, 1966.

Supreme Court of the United States, No. 13 original, --- October Term, 1933. State of New Jersey, Plaintiff vs. State of Delaware, Upon exceptions to the Report of the Special Master, February 5, 1934.

Van Zandt, Franklin K., *Boundaries of the United States and the Several States*, Geological Survey Professional Paper 909, United States Department of the Interior, Geological Survey, 1976.



Old Post Road marker sign

Delaware-Maryland border

Along Old Baltimore Pike, New Castle County, Del.

Delaware Heritage Commission

121 Duke of York Street, Dover DE 19901

820 N. French St., Wilmington, DE 19801

302-744-5077

state.de.us/heritage



ISBN 10: 0-924117-16-8
ISBN 13: 978-0-924117-16-9



9 780924 117169