"Shewing the Course":
Defining the Role of Public Highways in Early Pennsylvania, 1680-1800

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In the winter months of 1679-1680, the Dutch travelers Jasper Dankers and Peter Sluyter undertook a journey from New York to Maryland for the purpose of viewing land for their future religious settlement. Despite traveling in the company of guides, the travelers frequently noted in their journal that they had "missed the way." These misses occurred regardless of whether they traveled along "broad cart roads" or plied their way "through bushes by an untrodden path." Locals had marked the several courses that the two Dutchmen traversed with trees bearing "a piece cut out of the bark with an axe, about the height of a man's eyes from the ground." Dankers and Sluyter's opinion of this method: "in consequence of the great number of roads so marked, and their running into and across each other, they are of little assistance, and indeed often mislead." At a time when the region was peopled mostly by Indians, the roads and paths that Dankers and Sluyter described reflect a predominately indigenous nature, with only slight indications of European intervention.[1]

Between 1680 and 1800, Pennsylvania's transportation landscape experienced a dramatic transformation, one that influenced the movement of people, goods and information in the region for centuries to come. One of the central components of that transformation was the surveying and laying out of public highways. These highways developed along three broad patterns. Initially, Pennsylvanians constructed highways to connect Philadelphia to other major settlements along the Atlantic seaboard. Then, in the first half of the eighteenth century, they established highways to connect Philadelphia to the main settlements within its burgeoning hinterland. Finally, highway construction expanded in the middle decades of the eighteenth century to include roads linking interior towns to one another. These highways encouraged European expansion; extended markets of agriculture, commerce and industry; solidified allegiances to competing spheres of political authority; and connected settlers to the social institutions that shaped their lives. They also symbolized a conceptualization of land as bound by physical spaces of transport that were centrally organized, scientifically ordered and increasingly integrated into the societies and economies around them.

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[1] Jasper Dankers and Peter Sluyter, *Journal of a Voyage to New York and A Tour of the American Colonies in 1679-80* (Ann Arbor: University Microfilms, 1966), pp. 186-7, 211. For a detailed description of Indian paths in Pennsylvania before and during the early decades of European settlement, see Paul A. Wallace, "Historic Indian Paths of Pennsylvania" *PMHB* Vol. 76, No. 4 (October 1952) pp. 411-39, and *Indian Paths of Pennsylvania* (Harrisburg: Pennsylvania Historical Museum and Commission, 1998).

The construction of early Pennsylvania's highway system[2] was neither incidental nor inevitable, but rather reflected the actions and decisions of a broad spectrum of competing interests. Historians of eighteenth-century transportation, however, have largely argued that highways emerged simply as a result of settlement and expansion. Some highlight the role that roads played in advancing European settlement and promoting travel, yet are quick to emphasize that eighteenth-century developments were mere preludes to the more significant changes of the mid-1800s. The most extensive study of the topic in early Pennsylvania complicates these interpretations by providing insight into the relationship between transportation and economic activity in the Delaware and Susquehanna River Valleys, but ultimately tells a story of limitations and decline. As a result, historians have failed to appreciate fully the motives behind and consequences of concerted efforts by officials and settlers to promote internal improvements over the course of the late-seventeenth and eighteenth centuries.[3]

A closer examination of Pennsylvania's early highways and the various ways they appear in manuscript and printed texts challenges this standard interpretation. The administration of highways in early Pennsylvania reflected a centralized effort to promote internal development and regulate the movement of people, goods and information.

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[2] I define highway system in the following way: First, this notion accounts for the relationship between highways and what I call the *primary features of transport*: the physical spaces along which movement occurred. These include Indian paths, customary roads, public roads, highways, turnpikes, causeways, fords, ferries and bridges, but also navigable streams, creeks, rivers and canals. Secondly, the term highway system invokes an idea that highways were integrated into, and a central feature of, an expanding web of social, economic and administrative institutions, which together comprise the *secondary features of transport*. They include the social spaces that facilitated movement, like towns, inns, taverns, liveries, and smith shops. They also include social, administrative and economic spaces that grew up alongside these early highways, such as meeting houses, churches, post offices, courthouses, markets, mills, iron works, and other sites of economic activity. Finally, the term includes an understanding of change over time and the reciprocal nature of the relationship between primary and secondary features of transport. I do not assume that a unified highway system always existed, or that the acts of constructing roads or building taverns, churches, courthouses and mills equate to a uniform whole. Rather, I seek to chart short- and long-term growth while maintaining an awareness of limitations and failures.

[3] Carl Bridenbaugh, *Cities in the Wilderness: The First Century of Urban Life in America, 1625-1742* (New York, 1955) and *Cities in Revolt: Urban Life in America, 1743-1776* (New York: Knopf, 1955). Seymour Dunbar, *A History of Travel in America* (Indianapolis, 1915); Wilbur C. Plummer "The Road Policy of Pennsylvania: A Thesis" (Ph.D. dissertation, University of Pennsylvania, 1925); George Swetnam, "Pennsylvania Transportation," in *Pennsylvania History Studies*, No. 7 (Gettysburg: The Pennsylvania Historical Association, 1964), p. 6; John Flexer Walzer, "Transportation in the Philadelphia Trading Area, 1740-1775" (Ph. D. dissertation, University of Wisconsin, 1968), and "Colonial Philadelphia and Its Backcountry," *Winterthur Portfolio*, vol. 7 (1972), pp. 161-173; and Carl B. Lechner, "The Eerie triangle: The Final Link Between Philadelphia and the Great Lakes," *PMHB* Vol. 116, No. 1 (January 1992), pp. 66.

Descriptive and visual representations of highways further reinforced a conceptualization of roads as spaces that facilitated social, economic and political integration. Understanding these developments changes not only the historiography of pre-1800 highways, but also provides a better appreciation of how American transportation systems evolved over time and their relationship to social and economic development.

This paper presents this argument in three parts. The first section addresses efforts to establish administrative authority over public highways on the local and central level. The second section looks at surveying manuals and surveys, and analyzes European-American attempts to impose order on their highways by defining their physical attributes and purpose. The final section examines printed texts that disseminated information about highways, reinforcing the place and function of roads within the known landscape.

"that there may be convenient roads"

The Penn family sought an active role for the central government in the planning and settlement of its colony. This was true of William Penn and the founding of Philadelphia, but also of Thomas and John Penn and the establishment of counties and county seats in the middle decades of the eighteenth century. Three principles guided the latter Penns and their agents in determining the location of county seats: centrality within counties, accessibility to Philadelphia, and adequate distances from other counties. The actions of the Penns and their agents exhibited an understanding of the role that both Philadelphia and these county seats would play in shaping the development of the Pennsylvania backcountry.[4] Their actions also presupposed the establishment of an integrated highway system that facilitated settlement, trade and the spread of legal institutions. This was, in part, because the centralizing policies that dictated county formation filtered even further down, and influenced the construction and regulation of the public highways that linked interior settlements to one another and Philadelphia.

[4] James T. Lemon, "Urbanization and the Development of Eighteenth-Century Southeastern Pennsylvania and Adjacent Delaware," *William and Mary Quarterly*, 3rd Series, Vol. 24, No. 4 (October 1967), pp. 512-14. Lemon's understanding of the centralized planning of Pennsylvania stems from his readings of correspondences between the Penns and their colonial agents, but also from his use of central place theory as a model for understanding social, economic and political development. He draws heavily on the work of historical geographers, including Walter Christaller, *Central Places in Southern Germany*, trans. Carlisle W. Baskin (Englewood Cliffs, 1966) and Brian J. L. Berry, "Remarks on Central Place Studies Conducted in the United States and Canada," in Forrest R. Pitts (ed.), *Urban Systems and Economic Development: Papers and Proceedings* (Eugene: University of Oregon Press, 1962).

The importance of roads to the colony of Pennsylvania was impressed upon William Penn shortly after he received his charter in 1681.[5] In a document entitled *Certain Conditions or Concessions*, Penn and his associates agreed that:

> the surveyors shall consider what roads or Highways will be necessary to the Cities, Towns, or through the lands. Great roads from City to City not to contain less than forty feet in breadth shall be first laid out and declared to be for highways … and the like observation to be had for the streets in the Towns and Cities, that there may be convenient roads and streets preserved not to be encroached upon by any planter or builder.[6]

The immediate impact of this condition was the surveying and laying out Philadelphia on a grid system. Surveyor General Thomas Holme's *A Portraiture of the City of Philadelphia*, drawn two years later, depicted clearly ordered streets that were, at the time, little more than scratches on the landscape. The map and accompanying advertisement presented a city of nine streets running east to west and twenty-three streets north to south. High, Broad and two Front streets (one on the Schuylkill, one on the Delaware), Holme's boasted, were "one hundred foot broad," while the remaining streets were "of fifty Foot breadth."[7] The design, with alterations, proved prophetic. Philadelphia's street system eventually went from a patchwork of interwoven dirt paths to a highly structured maze of paved, graveled and earthen streets extending westward from the Delaware River.[8] Philadelphia's street plan quickly became a model for city planning that was reproduced within the colony. Descriptions, maps and draughts of surveys that included Bristol, Chester, York and Carlisle described their partially constructed streets as "regularly laid out" and represented them as perpendicular lines.[9]

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[5] In the interests of time and space, I have not included a discussion of pre-Penn road policy in the region. For an overview, see Plummer, *The Road Policy of Pennsylvania*, pp. 9-14.

[6] *Certain Conditions or Concessions, Agreed upon by William Penn, Proprietary and Governor of the Province of Pennsylvania and those who are the adventurers and purchasers in the same province in the Eleventh of July, One thousand six hundred and eighty one*, in *Pennsylvania Archives*, Series I, Colonial Records, (Harrisburg, 1838), p. XVIII.

[7] *A letter from William Penn proprietary and governour of Pennsylvania in America, to the Committee of the Free Society of Traders of that province, residing in London. Containing a general description of the said province … To which is added, an account of the city of Philadelphia newly laid out. Its scituation between two navigable rivers, Delaware and Skulkill, with a portraiture or plat-form thereof, wherein the purchasers lots are distinguished by certain numbers inserted. And the prosperous and advantagious settlements of the Society aforesaid, within the said city and country, &c.* (London, 1683), p. 10.

[8] For a description of alterations to Holme's original design, see Oliver Hough, "Captain Thomas Holme, Surveyor-General of Pennsylvania and Provincial Councillor," *PMHB*, vol. 19, no. 4 (1895), p. 421.

[9] Jedidiah Morse, *The American Gazetteer…* (Boston, 1791), the quote is from the entry for York, Pennsylvania (page unnumbered).

Ensuring the safe and convenient movement between settlements was also a concern immediately acted upon by Pennsylvania authorities, and resulted in the creation of multiple administrative apparatuses to regulate highways on both the central and local level. Pennsylvania's first *Frame of Government* (1682) declared "the Governor and provincial Council shall at all times settle and order the situation of all cities and market towns in every county, modelling therein all public buildings, streets and market places; and shall appoint all necessary roads and highways in this province."[10] The governor and council retained certain powers throughout the eighteenth century, most notably the powers to declare public highways and oversee their surveying and laying out, powers they indulged no fewer than twenty-three times before 1776.[11]

Almost immediately, the governor and council dispersed power over distinct aspects of this nascent highway system along a chain of administrative institutions. On the central level, these institutions included the Assembly and the office the Surveyor General. Colonial and state assemblies assumed legislative powers over the primary and secondary features of Pennsylvania's highway system, and by 1700 had enacted general road laws, granted multiple charters for ferries and passed numerous acts regulating rivers, horses, posts, public houses, internal trade and the movement of free people and servants to, from and within the province.[12] Additionally, William Penn appointed

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[10] James Mitchell and Henry Flanders (eds.), *Statutes at Large of Pennsylvania From 1682 to 1801,* Vol. 1 (Harrisburg, 1896), p. 119.

[11] Any calculations of the number of public highways constructed in Pennsylvania between 1675 and 1800 are problematic, at best. *The Minutes of the Provincial Council* between 1683 and 1776 show that at least twenty-three confirmed returns of surveys appeared before the council. Generally speaking, a return confirmed by the council might be considered a public highway. However, some confirmed returns make this explicit by including the clause "declared to be a King's highway or Publick Road," while others do not. The problem of using the council minutes is further compounded by the fact that not all highways are recorded. For example, the highway from Reading to Easton does not appear in the Minutes. See *Pennsylvania Archives*, Colonial Records, Vols. 1-11 (Harrisburg, 1838-53). After the Revolution, the governor and council oversaw numerous internal improvements of both pre-existing and new roads. A published report entitled, *General Statement of the Contracts for Opening and Improving Roads and Rivers …* (Philadelphia, 1797) records 57 road contracts fulfilled. These contracts usually involved the construction or maintenance of a portion of a major road, however, and cannot be used to compile the number of actual highways existing in Pennsylvania in the 1790s. Regardless, these numbers suggest that central oversight of road construction in early Pennsylvania was more considerable than historians have heretofore acknowledged, especially before the Revolution.

[12] For instance, laws enacted between March 10, 1683 and May 18, 1699 included three laws respecting bridges and road construction; three regulating ferries (on the Neshaminy, Christiana, Brandywine, Schuylkill, and Delaware); three regulating public houses; three regulating horses; three regulating the movement of information (including two directed at the establishment of the post office); two regulating the movement of servants; one prohibiting weirs from blocking rivers and creeks; one regulating the

Thomas Holme Surveyor General in 1682. The Surveyor General's responsibilities included, among other duties, the surveying of roads and the overseeing of deputy surveyors similarly employed.

On a local level, three important institutions appeared to ensure the effective regulation and maintenance of the highways. First, administrators created twenty-five counties between 1681 and 1800, and established courts of quarter sessions in each as the principal apparatus for the building and maintaining of roads and bridges within the counties.[13] Once a public highway had been viewed, laid out and confirmed in council, the responsibility of cutting, clearing and regulating the road fell to the counties through which it passed.[14] Second, municipal authorities were created within each county, most notably townships and town governments, and their powers included everything from petitioning for new roads to regulating streets within particular towns.[15] Finally, each township had its own overseer of the highways to enforce road laws and assume responsibility for the maintenance of county roads and public highways.[16]

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importation by land of tobacco from Maryland; two regulating trade within the colony; and one regulating streets and watercourses within the towns of the colony. In Mitchell, *Statutes*, vol. 1, pp. 148-246. In 1700 alone, there were two laws concerning the maintenance and regulation of roads and bridges; one regulating ferries (on the Neshaminy, Delaware, Schuylkill, Brandywine, and Christiana); one regarding the licensing of public houses; one regulating the post office; one regulating weirs on rivers and creeks; one prohibiting non-resident traders from trading within the colony; one regulating street and watercourse maintenance within the towns; one regulating vessels entering Philadelphia; one regulating the departure of people from the province; and one establishing a subscription plan for the construction of a permanent bridge over Chester Creek; in Mitchell, *Statutes*, vol. 2, pp. 10-141.

[13] *Law for Impowering the Justices in Each County to Lay Out & Confirm All Roads Except the Kings Highways or Public Roads,* in Mitchell, *Statutes at Large*, vol. 1, p. 329. See also, Clair Keller, "The Pennsylvania County Commission System, 1712-1740," *PMHB*, Vol. 98, No. 3 (July, 1969), 372-82; and Edwin B. Bronner, "Philadelphia County Court of Quarter Sessions and Common Pleas, 1695," *PMHB* Vol. 77, No. 4 (October, 1953), p. 461.

[14] County maintenance of the highways was fully established with the *General Road Law of 1700*. With the 1762 *Amendment to the General Road Law of 1700*, regulation of the highways shifted to the townships. Originally, road service was compulsory for all inhabitants. After 1762, counties could determine whether or not to replace compulsory service with a road tax to be levied and collected by supervisors of the highway and used to hire laborers; Plummer, pp. 25-6. For a more detailed analysis of the 1762 law, especially the conflicts it created within the counties over road policy, see Walzer, "Transportation in the Philadelphia Trading Area, 1740-1775," pp. 188-212. Three exceptions to the rule that roads were always cut and cleared under the direction of the county or township were: 1) military roads, like Braddock and Forbes' Roads; 2) turnpikes; 3) state highways constructed in the 1790s by private contractors bonded to the state and paid with money appropriated by the Assembly.

[15] For a detailed study of the township in early Pennsylvania, including a discussion of its place within a centralized vision of colonial development, see Lucy Simler, "The Township: The Community of the Rural Pennsylvania," *PMHB* Vol. 106, No. 1 (January 1980), pp. 47-9 and 61-2.

[16] Initially, county courts of quarter sessions appointed overseers. After 1762 Amendment to the *General Road Law of 1700*, overseers were replaced by supervisors elected by the townships. See Plummer, p. 26.

Taken as a whole, these centralizing designs reflected the founders' understanding of how roads and administrative institutions pursued the same ends – expansion, economic development and political cohesion. Counties were laid out with the intention that highways would unite county seats with the smaller towns in their counties, with other county seats and with Philadelphia. Central administrative institutions further evinced a desire to regulate how people moved, where they moved and what activities they could and could not pursue along Pennsylvania's principal highways. Although these institutions were by no means new to the Atlantic world, their application to the Pennsylvania landscape altered the meaning and function of transportation in the area and established practices that persisted for centuries.

"Agreeably fill'd with remarks"

The colonial projects of British North America brought together a number of broad forces circulating about England and Europe in the seventeenth and eighteenth centuries. The Enlightenment emphasis on science, reason and progress, in particular, harbored significant consequences for the internal development of Pennsylvania.[17] These influences led to an administrative impulse to impose order on an unfamiliar landscape, one that prompted numerous land surveys within the colony. They further pervaded the practices that surveyors employed in plotting Pennsylvania's highways. Several of the land routes that became highways – including appropriated Indian paths and county and customary roads – had a longer history of facilitating the movement of people and the exchange of goods in the region.[18] Their conversion to King's or State Highways, however, altered both their physical appearance and the meanings people associated with them. Key to that transformation was the act of surveying, which established the practices that Pennsylvanians used to define the role of highways within the broader landscape. Surveyors used scientific principles and descriptive approaches in conducting their trade,

[17] David Spadafora, *The Idea of Progress in Eighteenth-Century Britain* (New Have: Yale University Press, 1990); Judith McGaw (ed.), *Early American Technology: Making and Doing Things from the Colonial Era to 1850* (Chapel Hill: University of North Carolina Press, 1994); and William E. Burns, *Science and Technology in Colonial America* (London: Greenwood Press, 2005).

[18] For a studies that describe early Indian paths and their appropriation by Europeans, see Paul A. Wallace, "Historic Indian Paths of Pennsylvania," pp. 411-39; and Wheaton J. Lane, *From Indian Trail to Iron Horse: Travel and Transportation in New Jersey, 1620-1860* (Princeton: Princeton University Press, 1939).

and their practices reflected a conceptualization of roads as physical spaces of movement that facilitated social, economic and political integration.

Administrators in early Pennsylvania thirsted for knowledge of their surroundings, and the men most responsible for the accuracy and authority of that information were the surveyors. The abilities of a late seventeenth- and eighteenth-century surveyor reflected a mixture of education, formal training and experience. Pennsylvania's first surveyor general, Thomas Holme, epitomized this combination. Holme was born into a middling Lancashire family and received a formal education at the Hawkshead Grammar School. No evidence exists that he attended university, however, and he probably learned the surveying trade while a captain in Cromwell's New Model Army stationed in Ireland in the 1650s. There he performed the duties of a cartographer and admeasurer under Dr. William Petty, a man well versed in the intricacies of surveying, though not, in the words of historian Irma Corcoran, "hampered by the accumulation of materials and procedures that appeared requisite" to many of the foremost British surveyors of the time.[19] While Petty recruited surveyors to map out newly conquered territories in Ireland, he "opened the way for a relatively large influx of competent though only moderately well educated surveyors into what had hitherto been an exclusive company."[20] Holme fit this mold perfectly: "He would have been well qualified to learn protraction, drafting, and estimation of quantities of land, and, further, the reduction of field maps to uniform pages and addition of color and ornament – in short, to master the skills required by the middle or higher echelon of surveyors."[21] Holme brought these skills and experiences with him to Pennsylvania in 1682, along with a small army of similarly trained surveyors.[22]

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[19] Irma Corcoran, *Thomas Holme, 1624-1695: Surveyor General of Pennsylvania* (Philadelphia: American Philosophical Society, 1992), p. 40.
[20] Ibid., p. 40.
[21] Ibid., p. 44.
[22] For a description of Holme and other surveyors in early Pennsylvania, see Walter Klinefelter, "Surveyor General Thomas Holme's 'Map of the Improved Part of the Province of Pennsilvania,'" *Winterthur Portfolio*, Vol. 6. (1970), pp. 41-74. For a general discussion of the increasing accessibility of surveying and the subsequent growth in the number of surveyors, see Martin Brückner and Kristen Poole, "The Plot Thickens: Surveying Manuals, Drama, and the Materiality of Narrative Form in Early Modern England," *ELH*, vol. 9 (2002), p. 620. For the history of Holme's early life and education, as well as his military service, see Corcoran, pp. 3-10, 35-46. Subsequent generations of Pennsylvania surveyors came from a similar background as Holme, and military experience proved a fertile ground for training surveyors. Still,

The late seventeenth and eighteenth centuries witnessed a number of innovations in the tools, practices and theories of surveying. One important source of knowledge for the surveyor was the technical manual, which abounded in eighteenth-century London and arrived in Pennsylvania as early as 1700.[23] Surveying manuals walked the prospective surveyors through the mathematical skills – from simple addition to advanced trigonometry – required to perform their duties. They also identified the various surveying instruments and described their uses. Finally, most manuals presented problems, theories and solutions for readers to replicate, teaching them how both to conduct a survey and to translate field notes into accurate returns and draughts of proper scale. These manuals dealt primarily with property surveys, but the information they imparted and skills they produced extended to the surveying of political boundaries, lakes, rivers and roads. More importantly, they contributed to a geodetic discourse that fostered new ways of conceptualizing land.[24]

Some manuals included specific guidelines for surveying roads, and these instructions reveal the ways in which measurement and description combined to produce the perception of a road as an ordered and integrated space. William Gardiner's *Practical Surveyor Improved* (1731), for example, offers a five-page description on "Shewing how to survey and plot the Roads thro' the County." His instruments of choice were "Mr. Sisson's theodolites, a Measuring-Wheel that shews miles, furlongs, chains, and links, a Chain, the new Protractor and Scale," though he admits that when surveying roads where

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many others learned the trade through family connections and as a result of eighteenth-century land speculation booms. Examples of this are the Scull, Lightfoot and Lukens families.

[23] Edwin Wolf, II, "A Parcel of Books for the Province in 1700," *PMHB*, vol. 89, no. 4 (October 1965), p. 438. Penn received this parcel of books from London booksellers Awnsham and John Churchill. Of the surveying texts, Wolf notes, "In the newly settled land where farms, estates, and city lots had to be laid out almost day by day, three copies of Vincent Wing's *Art of Surveying* were certainly not too many. Upon its publication, it was remarked that Wing had 'much outdone what ever has appear'd hitherto English of the like Nature.'" Numerous manuals, essays and pamphlets about surveying were printed in London in the seventeenth and eighteenth centuries, and the work of several authors, including Vincent Wing, William Leybourn, William Gardiner, Benjamin Talbot, John Love and Robert Gibson appeared in multiple editions. Beginning the 1770s, American printers produced copies of some of these works, and eventually began publishing American texts; see Evald Rink, *Technical Americana: A Checklist of Technical Publications Printed Before 1831* (Millwood, NY: Kraus International Publications, 1981), pp. 283-88.

[24] For a discussion of the impact of surveying manuals on early modern English thought and culture, see Martin Brückner and Kristen Poole, "The Plot Thickens," pp. 619-25; for North America, see Martin Brückner, *The Geographic Revolution in Early America: Maps, Literacy, & National Identity* (Chapel Hill: University of North Carolina Press, 2006), pp. 16-50. For surveying tools, see Samuel Guye and Henri Michel, *Time & Space: Measuring Instruments from the 15th to the 19th Century* (New York: Praeger, 1970), pp. 267-77.

complete accuracy is not required, simpler instruments like a compass and chain suffice.[25] A thorough survey consisted of two parts. First was the return, which was a written description of the road as laid out during the survey. The second was the draught, or visual depiction of the road based upon information accumulated in the return and field notes. Combined, these documents described the physical attributes of the road and enumerated the spaces that the surveyor deemed significant.

On the most basic level, a survey provided information about the various courses found on any given road. Each course was determined by finding the bearing and then measuring the distance between two fixed points along the road. The degrees in a bearing were usually referenced from the north or south points of the horizon and given as whole numbers or half fractions. The units of measurement used for establishing distances varied, with the overall length of the road determining the base unit. English road surveyors used miles, furlongs, chains, poles and links. In Pennsylvania road surveys, the standard units of measurement were the mile and the perch.[26] On a return, then, a road appeared primarily as a string of bearings and distances marking each course: " … North 72 deg. East 120 Perches, thence North 70 ½ deg. East 80 Ps, then North 74 deg. East 90 pches … "[27] If these measurements appeared on the draught, they did so either just above or below the segment of the road to which they corresponded or as lists in the margins. These straightforward mathematical calculations suggest an attempt to bring precision and order to the road by breaking it down to measurable, definable parts.

The instructions for plotting roads did not cease with these scientific procedures, and further directed the surveyor to observe the primary and secondary transport features, as well as any other "remarkable object." Returns, according to Gardiner, needed note each crossroad, street and lane, and indicate "whether it is on the right hand, or the left, and to what place it leads; and whether it inclines forward, or backward, or is nearly at right angles." He also noted, "when I pass over any bridge, or thro' any ford, I mention it, with the name of the river, and from whence it comes, and whither it goes." It was important that draughts reproduced this information as well, designating roads and

[25] William Gardiner, *Practical Surveying Improved* (London, 1731), pp. 90, 49-50.
[26] A simple conversion: 1 perch = 16.5 feet, and 320 perches = 1 mile. Compared to the English scales, 1 perch = 1 pole; 1 pole = 25 links, 4 poles = 1 chain; 40 poles = 1 furlong.
[27] "By virtue of the annexed Order …" in Charles I. Landis, "History of Philadelphia and Lancaster Turnpike: The First Long Turnpike in the United States," *PMHB*, Vol. 42, No. 1 (1918), p. 9.

waterways, depending on their size and significance, by single or double lines. Returns and draughts needed also to identify the "towns, churches, mills, etc." which the road passed, and note whether they adjoined or were removed from the road, what side of the road they fell on and their proper names. Finally, returns needed to account for additional topographic features, including hills, forests and swamps, and the draught to depict them as part of the road's environs. By adding a descriptive element to the more basic course calculations, surveyors demonstrated both a desire to locate these roads within the physical and social landscape and represent them as the principal organizing features of their surroundings.[28]

These influences and practices crossed the Atlantic and became a prominent feature of highway surveying in early Pennsylvania. The methods and presentation of the course calculations remained the same throughout the period, reinforcing the notion of the road as a mathematically ordered and geographically located space. The descriptive and visual content, however, varied considerably from survey to survey. These discrepancies depended on a number of circumstances, including the date of the survey, the location of the highway, the extent of settlement along the road and the personal choices of the surveyor. Regardless, each survey fostered an understanding of highways as an essential component in the integration of a continually expanding society.

A closer examination of the returns and draughts of some of Pennsylvania principal highways illustrates these tendencies. These documents cover a broad temporal range, and each represents one of the three patterns of highway development outlined at the beginning of this paper. The first includes a section of the highway running north to south from Philadelphia to New Castle. The second is of the Old Lancaster Road that connected Philadelphia to its expanding hinterland. The third highway united two interior towns, Reading and Easton, to one another.

One of the earliest existing highway surveys covered a section of the Queen's Highway between Darby and Chester in 1706. Both the return and draught are included on the same page and provide only a basic representation of the road. The return appears in the form of a table, listing for each course the bearing, distance and landmark where it ended. The draught presents the road as a dotted line, with a pair of hash marks noting the

[28] Gardiner, *Practical Surveying Improved*, pp. 92-5.

points where each course terminated. The places of note were mostly creeks and runs, with only "David Loyds gate" and a box with a double-line cross symbolizing the town of Chester breaking the monotony. At first glance, the survey divulges little about either the road or its purpose. When viewed in the context of broader surveying techniques of the seventeenth and eighteenth centuries, however, the road becomes the centerpiece of a much broader landscape. By presenting the road as the primary object of note, the draught emphasizes the central role it will play in connecting Darby and Chester to one another and to Philadelphia, facilitating social and economic development in the area.[29]

In 1748, the road from Philadelphia to New Castle was resurveyed, including the section of the road leading from Darby to Chester. The new survey indicates development along the road, as well as the elaboration of the surveying practices that reflected how Pennsylvanians understood their highways. The return breaks the road down into greater detail, by increasing both the number of courses measured and the number of "remarkable" objects observed. Those objects included crossroads, bridges, watercourses, personal property, "James Mathers' Smith Shop, and "a Wild Cherry Tree." The confirmation of the return also described the physical transformation intended for the road: "the said Road is to be open'd sixty feet wide."[30]

Two returns of surveys for the Old Lancaster Road further illustrate the extent to which surveying practices developed in Pennsylvania in the first half the eighteenth century, but also reveal that the Pennsylvania landscape was an important factor in determining the location of highways. The 1731 return systematically records the various courses of the road from Lancaster Courthouse to the "public Road, near the house of John Spruce" on the border of Lancaster and Chester counties. The bearings range from three to fifty-one degrees, and the sections of road from 25 to 1,271 perches, suggesting the meandering nature of the early road and the need curve its course to meet the restrictions of the landscape. A 1741 return finishes the Lancaster Road survey through Chester and Philadelphia counties, concluding at the Schuylkill ferry on High Street. Like

[29] "Return of ye Queen's Road from Chester to Darby, Survey'd 1706," Road and Travel Notes Collection, Historical Society of Pennsylvania.
[30] *Pennsylvania Archives*, Colonial Records, Vol. 5, Minutes of the Provincial Council, pp. 301-3.

the 1733 return, variations in the bearings occur, though the course distances are shorter and more uniform.[31]

The impact of geography was even more noticeable on John Sellers and William Sheaffer's 1767 draught of the Lancaster Road, and led to speculation about how to improve the existing route. Two main lines appear on the draught: a segmented line representing the highway, and an imaginary line running directly from the Schuylkill to Adamstown on the fifty-ninth mile. These lines reveal both the need to adjust the road to account for the physical obstacles found in the landscape, and the desire to create a more symmetrical course by aligning the road as closely as possible to the imaginary line. The road, as it is laid out, contains 203 courses and follows a more northerly direction than the straight line. The two surveyors suggest that improvement was possible:

> "the greater part of the way is good ground for a road, yet it appears not practicable in all places on account of steep hills to make a road exactly along the streight line, but by varying therefrom sometimes to the north and sometimes to the south the largest extent not exceeding 50 or 60 perches, a practicable passage may be found."

Although it cannot be determined from the draught exactly how far the actual course deviated from the imaginary line at any given point, the surveyors indicate that course as laid out adds "4 m[iles] 2 q[ua]r[ter miles] 25 p[erche]s" to the overall journey.[32]

The Lancaster Road surveys also demonstrate how the density of settlement influenced the information surveyors included in their returns and on their draughts. On the one hand, the 1733 return detailing the western portion of Lancaster Road contains few observations of the primary and secondary features of the highway. It includes natural obstacles like Conestoga Creek, the west and east branches of Brandywine Creek, and an unnamed hill, as well as manmade landmarks and geopolitical boundaries like Lancaster Courthouse, "Thomas Moore's mill," the division line between Chester and Lancaster counties, crossroads and John Spruce's house.[33] On the other hand, the eastern portion of the road surveyed in 1741 contains considerably more landmarks. The 1741

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[31] A copy of the 1733 return can be found in *Pennsylvania Archives*, Colonial Records, Vol. 3, Minutes of the Provincial Council pp. 521-3. For the 1741 return, see *Pennsylvania Archives*, Colonial Records, vol. 4, pp. 503-5. See also, Charles I. Landis, "History of the Philadelphia and Lancaster Turnpike: The First Long Turnpike in the United States," pp. 3-5, 9-11.

[32] John Sellers and William Sheaffer, "Road from Philadelphia to Lancaster, 1767," RG 12.9, Department of Highways, Pennsylvania State Archives.

[33] *Pennsylvania Archives*, Colonial Records, Vol. 3, pp. 521-3.

return notes trees, hills, runs, crossroads, dwelling houses, meeting houses, taverns, shops, property lines, towns, townships, and county lines. Compared to the first return, this is a noticeable difference in detail, but also the emphasis placed on that detail. The 1741 return offers a greater description of the road's many uses – to facilitate travel, exchange, consumption, and religious worship – as well as its role as a central highway to which interior roads connected in order to unite backcountry settlements with Philadelphia.[34]

The survey of one final road, the interior highway that connected Easton to Reading, demonstrates the extent to which surveys represented a road as an integral part of a broader system of transportation. David Schultze's 1755 draught of the road displays most of the primary features of transport that a thorough survey, according to Gardiner, contained. To begin with, Schultze's lays out the road with distances noted in miles and represented as marks on the draught. The road's principal function, as presented on the draught, was to connect two major rivers: the Delaware and Schuylkill. In laying out the road, however, Schultze's unearthed its position in a road network that linked Pennsylvania's interior towns to one another and Philadelphia. Schultze notes fourteen crossroads, one of which parallels the main road to the south and connects to four additional crossroads leading to Philadelphia. He presents crossroads as double lines, and observes their inclination from the main road and the places to which they lead.[35]

Schultze superimposes onto this road network the secondary features of transport. In so doing, he makes clear decisions as to the kind of information he deemed important and illustrates the integration of one of eighteenth-century Pennsylvania's more overlooked, yet nevertheless important public highways into a larger web of social, economic and cultural institutions. Unlike previously mentioned draughts, which focused primarily on the immediate vicinity of the road, Schultze expands the geographic area unified by the highway and its crossroads. He notes the many towns and townships the road passes through, in addition to the two county seats it connects. Schultze also includes illustrations for taverns, mills, and meetinghouses, as well as dozens of private

[34] The Sellers-Sheaffer draught similarly portrays how settlement patterns influenced depictions of the eastern and western half of the road. Taverns, meetinghouses and dwelling houses exist all along the highway, but appear in larger concentrations as the road nears the Schuylkill.
[35] David Schutlze, "A Draught of a Road," Road and Travel Notes Collection, Historical Society of Pennsylvania.

homes both along and distant from the main road. Finally, he marks the site of what he considered a meaningful cultural event in the area: "Here Ziszendort [sic] preached in 1742." This comment expands the highways importance by offering a glimpse of the road's history and cultural significance. Schultze's observations suggest that even in the more sparsely settled parts of Pennsylvania, highways reflected a specific set of assumptions. These observations bring together the road, individual households and remarkable objects in a way that emphasizes the highway's importance in creating communities in which individuals had access to the social and economic institutions central to their lives.[36]

Reproducing the procedures and practices of road surveying in the colonies represented something more than rote application of established custom. Pennsylvania surveyors plotted and laid out roads in a dramatically different geographic, social and economic context than the one in which the surveying techniques they used were developed. That context both influenced the observations that surveyors made and compelled them to present highways in way that demonstrated their central importance in the development and integration of early Pennsylvania's society and economy. In conducting their trade, surveyors laid a foundation of knowledge about highways and their relationship to the land that reinforced administrative authority and influenced how roads would be presented in printed texts in the eighteenth century.

"Exhibiting a General View of the Roads"

Over the course of the eighteenth century, colonial and early national printers produced a broad range of texts that contributed to the mapping of the physical landscape and the rise of geographic literacy in North America. These texts served multiple purposes, from youth education to the promotion of nationalism. They brought literate and illiterate consumers into public and private conversations about the physical world that surrounded them on local, regional, continental and global levels. [37] They also performed a seemingly more mundane task, but one that influenced the way people understood the physical spaces of movement that shaped their daily lives – the mapping

[36] David Schutlze, "A Draught of a Road," Road and Travel Notes Collection, Historical Society of Pennsylvania.
[37] Martin Brückner, "Lessons in Geography: Maps, Spellers, and Other Grammars of Nationalism in the Early Republic," *American Quarterly*, Vol. 51, No. 2 (1999), pp. 311-343.

of Pennsylvania's highway system through printed descriptions and cartographic representations of roads.

As knowledge of highways spread from the dusty shelves of administrative offices to the ink-stained presses of the print house, printers produced pamphlets, almanacs and maps documenting the development of Pennsylvania's principal roads. These texts mirrored the surveys discussed above, but added new dimensions of scale and integration that exceeded those found on the returns and drafts. Although printers rarely presented roads as the central feature of their texts, roads were nevertheless pervasive. Printers not only identified major highways, they depicted them with a level of detail that further defined their purpose and placed them within a broader system of transport. Consequently, printers participated in an effort to define the movement of people, goods and information by reinforcing an understanding of highways as integrating forces and by making that conception customary and accessible to a broad cross-section of society.

Describing the Highways

The single most popular and influential genre to reproduce knowledge of Pennsylvania's highway system in the eighteenth century was the almanac. As soon as the first printing press was established in Philadelphia in 1685, almanacs about the mid-Atlantic region appeared.[38] These almanacs reflected the local print culture of Philadelphia, and were designed to serve both functional and cultural purposes. They contained entries ranging from astrological data used by farmers to ephemera like the witticisms found in Benjamin Franklin's *Poor Richard* almanacs.[39] They also provided information about the primary and secondary features of Pennsylvania's highway system. As Pennsylvania expanded over the course of the eighteenth century, the almanacs' coverage of roads also increased. More than just tracing highway expansion across time,

[38] Although the first almanac was published in 1685, it took two decades for almanacs to begin appearing regularly. For a discussion of early Philadelphia printers, see Rosalind Remer, *Printers and Men of Capital: Philadelphia Book Publishers in the New Republic* (Philadelphia: University of Pennsylvania Press, 1996), pp. 11-23; and James N. Green, "The Book Trade in the Middle Colonies, 1680-1720," in Hugh Amory and David D. Hall (eds.), *A History of the Book in America*, vol. 1 The Colonial Book in the Atlantic World (Chapel Hill: University of North Carolina Press, 2007), pp. 199-223.

[39] Patrick Spero, "The Revolution in Popular Publications: The Almanac and *New England Primer* 1750-1800" (paper presented at The Atlantic World of Print in the Age of Franklin, Philadelphia, PA, September 28-30, 2006); See also, Marion Barber Stowell, *Early American Almanacs; The Colonial Weekday Bible* (New York: Burt Franklin, 1977).

almanacs helped to define both the physical attributes of the highways and their role in the development of Pennsylvania's social, economic and administrative institutions.

On the most basic level, almanacs defined the physical features of Pennsylvania's public highways by providing highway descriptions that, like the survey returns discussed above, measured the overall distance of the roads and broke them down into stages. Each stage listed a place "of note" and either its distance from the previous location or the accumulated mileage from the place of origin. Depending on the road, the places of note could include bridges, ferries, taverns, inns, dwelling houses, mills, iron-works, meeting houses, or court houses. For the first half of the eighteenth century, road descriptions were limited to the main highways running along the Atlantic seaboard and were presented in either paragraph or table form, toward the back of the almanac.

Titan Leeds' *American almanack for the year of Christian account 1715* contains the earliest known highway description printed in a Pennsylvania almanac.[40] The description placed New York, not Philadelphia, at the center of the colonial highway system, and included accounts of roads from New York to Boston and New York to Philadelphia. The overall distance from New York to Philadelphia measured 98 miles, and the road contained the following courses: "From New-York to Elizabeth-Town (by water) 16 mile, thence to Woodbridge 8 To Amboy 4. Thence to George Riscarriks 20 Miles, To Pages at Doctors brook 12 Mile, To Croswicks-Bridge 4 To Burlington 14 Mi. Thence to Philadelphia 20." [41] The most basic function of the highway description, then, was to provide readers with general information about distances, what to expect along the road, and how to navigate it successfully.

On a broader level, the almanacs helped to define the physical attributes of Pennsylvania's main highways by reorienting them with respect to other colonial centers, by charting their expansion, and by noting changes over time. In this way, the highway descriptions chronicled both the mutable nature of individual highways and their relationship to colonial and continental highway systems.

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[40] The first highway description in an American almanac was Daniel Leeds' "A Short Description of Highways," in his *An Almanack for the year of Christian account 1695* (New York, 1964). For a discussion of the earliest highway descriptions, see Stowell, *Early American Almanacs*, pp. 56-8.

[41] Titan Leeds, *The American almanack for the year of Christian account 1715. ... Fitted to the latitude of 40 degrees, and a meridian of five hours west from London, but may, without sensible error, serve all the adjacent places, even from Newfound-Land to Carolina* (Philadelphia, 1715).

Printers reoriented the highway system in their almanacs by centering it in Philadelphia at a relatively early date. In 1719, Jacob Taylor listed two roads originating out of Philadelphia, one toward New York and the other to James River in Virginia. Titan Leeds, who had initially listed his roads from New York, began showing main highways as originating in Philadelphia as early as 1720. Benjamin Franklin's *Poor Richard* almanacs demonstrated a similar transition, with his center shifting from Annapolis in 1732, to Philadelphia in 1735. This trend influenced early national almanacs, which presented Philadelphia as the central node of a national road system.[42]

Almanacs also charted the extension of highways, first northward and southward along the Atlantic coast, and eventually westward to include Pennsylvania's interior settlements. The expanded coverage of the coastal highway began immediately, with Leeds' 1716 almanac adding a southern course from Philadelphia to James River in Virginia. Between 1728 and 1745, Leeds almanacs added a road from Philadelphia to Annapolis, as well as roads from Annapolis to Williamsburg and Charleston. Jacob Taylor's *Almanac for 1745* included paragraph listings of two roads, one from Philadelphia northeastward to Norridgewock, measuring 600 miles, and the other southwestward 777 miles to Charleston.

By 1765, almanacs like Andrew Aguecheek's *The Universal American Almanack* began listing "Roads Westward" from Philadelphia to Pittsburgh and "Roads Northwestward" from Philadelphia to Reading, as well as interior roads from Reading to Easton, Lancaster and Harris's Ferry. Abraham Weatherwise's *Father Abraham's* followed suit five years later, but it took *Poor Richard* twenty-five years.[43] By 1800, almanacs had started to present Pittsburgh as primary transport point as well, with roads

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[42] Jacob Taylor, *An almanack for the year of our Lord 1719. Or An ephemeris ... Justly calculated for the meridian and latitude of Philadelphia* (Philadelphia, 1718); Titan Leeds, *The American Almanack for the year of Christian account 1720* (Philadelphia, 1719); Richard Saunders (pseudonym), *Poor Richard, An Almanack for the Year of Christ 1733* (Philadelphia, 1732); and Saunders, *Poor Richard … for … 1736* (Philadelphia, 1735). For national almanacs that represented Philadelphia as the central node, see Shepard Kollock, *The United States Almanac, for the year our Lord 1785* (New York, 1784).

[43] Andrew Aguecheek (pseudonym), *The Universal American Almanack, or yearly magazine … for the year of our Lord 1765* (Philadelphia, 1764). Abraham Weatherwise (pseudonym), *Father Abraham's almanack, for the year our lord 1770 … Fitted to the latitude of forty degrees, and a meridian of near five hours west from London.* (Dunlap: Philadelphia, 1769). Saunders, *Poor Richard improved … for … 1790* (Philadelphia, 1789). William Bradford printed the first such description of these western courses much earlier, however. William Bradford, *An Account of the distances from the city of Philadelphia, of all the places of note within the improved part of the province of Pennsylvania* (Philadelphia, 1755).

extending throughout the state of Pennsylvania, north to the St. Lawrence and west to mouth of the Mississippi. Also by 1800, almanacs printed in interior towns began including the highway descriptions found in the Philadelphia almanacs, as well as others that were specific to their locality.[44] The *Farmer's Almanac for the Year Our Lord 1800*, published in Greensburg, for example, detailed the "Glade Road from Bedford to Washington." Combined, these axial extensions outward from Pennsylvania's main settlements reflected a growing awareness of a highway system that connected cities, towns and settlements throughout Pennsylvania and North America.[45]

Almanacs further helped to define the highways by documenting changes to the courses of individual roads, including minor variations in place names and wholesale alterations. Variations appeared in the names and places along otherwise unaltered courses. For instance, Leeds' 1725 description of the road from Philadelphia to New York includes the destination "Mr. Brown's" between Burlington and Croswick's-Bridge. Eight years later in 1733, "Mr. Brown's" is replaced by "Whitehead's," located a mile closer to Burlington. These small-scale changes occurred throughout the century, and appear to have had little impact on the overall courses. Still, they are important because they illustrate the minute changes to highway descriptions, the variety of alternatives available to travelers and the conscious decisions of printers and authors to privilege certain spaces over others.[46]

The most notable changes in the highway descriptions were the significant alterations to the courses of major roads. Such an alteration occurred in the Philadelphia-New York road in the 1740s, and was noted in the *Poor Richard* almanacs. Although the total distance remained the same, the courses altered considerably when the Delaware crossing moved from Burlington to Trenton. The subsequent change in course was as follows:

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[44] The list of interior cities publishing almanacs for 1800 includes: Harrisburg, Lancaster, Greensburg, Germantown, Reading, York and Washington. Not all of these almanacs contain highway descriptions. Those that do are: *The Starry Calculator, Being an almanac for the year our Lord 1800* (Lancaster, 1799) and *The Farmers Almanac for the Year our Lord 1800* (Greensburg, 1799).

[45] Saunders, *Poor Richard improved ,,, for … 1790* (Philadelphia, 1789). See also, Kollock, *The United States Almanac, for the year our Lord 1785* (Philadelphia, 1784).

[46] Leeds, *The American almanack for … 1725* (Philadelphia, 1724)*;* and Leeds, *The American almanack for … 1733* (Philadelphia, 1732).

Poor Richard … for … 1736

Course	Miles
Philadelphia to	
Burlington	20
Whitehead's	8
Croswick's Bridge	6
Allentown	4
Cranberry Brook	12
Amboy	20
The Narrows	18
Flat Bush	5
New York	5
Total	98

Poor Richard … for … 1745

Course	Miles
Philadelphia to	
Bristol	20
Trenton	10
Prince-Town	12
Kingston	3
Brunswick	12
Amboy	12
The Narrows	18
Flat-Bush	5
New York	5
Total	98

These alterations, like the expansion of road networks and piecemeal changes mentioned above, reflected the complex nature of eighteenth-century internal improvements. They also demonstrated conscious choices made by the *Poor Richard* printers to define which roads best facilitated travel and what spaces along the route best met the needs of a mobile society.[47]

By including these spaces, printers not only defined the physical attributes of the roads, they placed Pennsylvania's highways in a broader social, economic and political context. Printers enumerated the secondary features of Pennsylvania's highway system in the road descriptions, but also in other places throughout the almanacs, including listings of county courts, Quaker and Baptist general meetings and fairs. They did so, in part, to show the reciprocal relationship between road construction and the establishment of the social, economic and legal spaces that shaped Pennsylvania's development. Their choices to privilege certain spaces over others, however, reflected a further effort to define the purpose of these roads.

To begin with, almanacs catalogued the secondary features of Pennsylvania's highway system that facilitated movement along the highways. Rest areas, including taverns, inns and private residences, increasingly appeared in the highway descriptions as road networks expanded. The descriptions of the road from Philadelphia to Lancaster best

[47] Saunders, *Poor Richard … for … 1736* (Philadelphia, 1735)*;* and Saunders, *Poor Richard … for … 1745* (Philadelphia 1744). Taylor notes a similar change in course in 1744, and presents the altered course as one mile shorter: Taylor, *An almanack for the year our Lord 1744* (Philadelphia, 1743).

represent the tendency of printers to write inns and taverns into the highway's social landscape. The 1790 entry in *Poor Richard*, for instance, includes the following establishments: Black-horse, Prince of Wales, Buck, Sorrel-horse, Plough, Unicorn, Blue Ball, White-horse, The Ship, Waggon, The Hat, and Red Lion. The distances between these taverns and inns ranged from one to seven miles, and the inclusion of each reveals both the accessibility of these important secondary spaces and the kinds of choices travelers had during their journeys. Taverns served numerous functions in eighteenth-century Pennsylvania, and were one of the main social institutions around which towns formed in the Pennsylvania backcountry. Their inclusion in the highway descriptions reveals the relationship between roads and the development of settlements, but also the ability of roads to connect those settlements to the larger colonial community.[48]

Almanacs also provided information about legal institutions. The description for "The Road from Philadelphia to Lancaster" found in the 1790 addition of *Poor Richard*, for example, notes the "Lancaster C. H." as the terminus.[49] Moreover, the almanacs repeatedly produced information about the county courts in separate sections. They followed the extension of courts of quarter sessions throughout Pennsylvania, beginning with those held for Philadelphia, Bucks, Chester, Newcastle, Kent and Sussex in the 1690s. By the end of the eighteenth century, *Poor Richard* noted the dates of every session for twenty-four counties.[50] The inclusion in the almanacs of the courts of quarter sessions listings is particularly relevant. The processes of road construction on the local level began in these courts, and it was here where people could petitioning for or against roads and exert some influence on the course of road development within their counties. Adequate knowledge of the location and timing of the sessions, then, was imperative to ensuring popular participation.

The almanacs further related information about social institutions like churches and meeting houses, and did so in a way that made clear the relationship between them

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[48] Charles R. Barker, "Colonial Taverns of Lower Merion," *PMHB*, vol. 52, no. 3 (1928), pp. 205-228. See also, Lemon, *The Best Poor Man's Country*, p. 148.

[49] In fact, most road descriptions that included a county seat indirectly noted the county courthouses. For the most part, it was implied that the county courthouses served as the termini within the county seat. The "Road from Philadelphia to Lancaster" in the *Poor Richard improved … for … 1790* illustrates this point. Here the road ends at "Lancaster C. H." *Poor Richard improved … for … 1790* (Philadelphia, 1789).

[50] The only exception is Wayne County. Previous editions of the almanac went further, naming the towns whereat the courts would be held within each county.

and the roads: they were destinations as well as landmarks. On the one hand, meeting houses appeared in the highway descriptions. The road from Philadelphia to Reading includes the "Plymouth meeting," while the road from Philadelphia to Bethlehem cites the "Baptist meeting" and "Swamp meeting."[51] On the other hand, almanacs frequently listed general meetings for both Quakers and Baptists towards the back of the almanacs, near the highway descriptions that showed the reader how to get to the towns where the meetings would take place. These lists, like the highway descriptions, grew over the course of the century, and they included meetings within Pennsylvania and the mid-Atlantic region, and as far away as New England and North Carolina.

Finally, the almanacs displayed diverse sites of economic activity associated with and existing alongside the main highways. In 1732, *Poor Richard* included the "Principio Iron Wor[k]." as one of main landmarks on the road from Philadelphia to Annapolis.[52] Similarly, "Dunker's-town Mill" and "Biar's Mill" were two of the landmarks noted on the "Road from Reading to Lancaster" in *The Universal American Almanack* as early as 1764.[53] Fair days, like the court sessions and general meetings discussed above, also were given their own place in the almanacs. Not surprising, this information was also found in the back of the almanacs, frequently just before the road descriptions and occasionally on the same page. The fair listing began with Daniel Leeds' *An almanack and ephemerides for the year of Christian account 1693*, which noted the fair days for Philadelphia and Chester. These notices remained a prominent feature for most of the eighteenth century, and the number of locations grew with each decade. In 1716, the list expanded to include fairs at Germantown and Newcastle. By 1732, *Poor Richard* had added Bristol and Burlington. Lancaster, Wilmington and Trenton had been added to the growing list of regional fairs by the 1745 edition *Poor Richard*. York, Reading and Newark followed by 1770.[54]

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[51] Saunders, *Poor Richard improved … for … 1795* (Philadelphia, 1794).
[52] Saunders, *Poor Richard … for … 1733* (Philadelphia, 1732).
[53] Augcheek, *The Universal American Almanack … for 1765* (Philadelphia, 1764).
[54] Daniel Leeds, *An almanack and ephemerides for the year of Christian account 1693 ... Being fitted to the meridian of that part of New-Jersey and Pennsylvania, where the vertex is distant from the Equator 4 degrees; but may, without sensible error serve all parts adjacent, even from Newfound-Land to the capes of Virginia* (Philadelphia, 1693). Titan Leeds, *American almanack for … 1716* (Philadelphia, 1715). For Saunders, *Poor Richard … for … 1732* (Philadelphia, 1731); Saunders, *Poor Richard … for … 1745* (Philadelphia 1744); Saunders, *Poor Richard improved … for … 1770* (Philadelphia, 1769).

Ultimately, almanacs did more than provide descriptions of Pennsylvania's main roads. They helped define the purpose of these roads by showing the kinds of activities for which they were employed – travel, religious worship, law, trade, consumption and information exchange.[55] They gave added meaning to the seemingly quotidian, and infused roads with social, economic, political and cultural significance. Given the almanacs' popularity, their influence in disseminating knowledge of Pennsylvania's highways cannot be underestimated.[56] Unlike the survey returns, which were accessible only through administrative channels, almanacs were cheap, produced in bulk, available in multiple languages and increasingly published both in Philadelphia and, by the 1790s, interior towns. Consequently, they reveal that internal improvements were increasingly known parts of the everyday lives and experiences of Pennsylvanians.

Mapping the Highways

Throughout the eighteenth century, engravers on both sides of the Atlantic produced numerous maps of Pennsylvania, many of which depicted roads. Maps were often drawn by or based off the work of well-established surveyors and geographers like Thomas Holme, Benjamin Eastburn, Nicholas Scull, William Scull, Thomas Hutchins and Reading Howell, as well as countless other county and military surveyors. As a result, they reflected the techniques and influences found on the survey draughts. Instead of focusing on one road, however, these maps reproduced images of a broader highway system. There were two main categories of maps in which roads appeared. First were maps of Philadelphia and its environs. These maps always contained detailed depictions of Philadelphia's gridded street system, and frequently showed the main highways

[55] One institution not discussed above, but present in the almanacs in the 1790s, was the post office. For instance, the 1795 edition of *Poor Richard* listed post towns from Philadelphia to Portland, to Talbot, to Richmond, and to Pittsburg. These lists noted several Pennsylvania post towns, including Philadelphia, Chester, Lancaster, York, Carlisle, Chambersburg, Bedford, and Pittsburg. Saunders, *Poor Richard improved … for … 1795* (Philadelphia, 1794).

[56] Franklin boasted of having sold 10,000 copies of *Poor Richard* throughout North America, from Boston to Charleston. See James N. Green, "Part One. English Books and Printing in the Age of Franklin," in Hugh Amory and David D. Hall (eds.), *A History of the Book in America*, vol. 1 The Colonial Book in the Atlantic World (Chapel Hill: University of North Carolina Press, 2007), p. 258; and Spero, "The Revolution in Popular Publications." For a broader since of almanac sales and influence throughout early America, see Milton Drake, *Almanacs of the United States*, Vol. 1 (New York: Scarecrow Press, 1962), pp. v-xix.

leading to and from the city.[57] The second category portrayed Pennsylvania at different times in its existence, with the geographic area expanding as its borders shifted. Coverage of roads on these maps similarly increased over time. Early maps showed only a few main highways, if any at all, while maps produced after 1750 increasingly portrayed extensive networks of roads, especially in the eastern half of Pennsylvania.[58]

Maps ranged in complexity and design, but always articulated certain European-American conceptualizations of the Pennsylvania landscape and movement across it. Maps claimed to be "Drawn from the Best Authorities" and "Laid down From Actual Surveys," and the desire to accumulate knowledge and impose a scientific order on the landscape resonated in these and other declarations of accuracy. Moreover, cartographic representations distinguished between the "improved parts" – places where settlements existed, land was developed and highways were constructed – and "the extensive frontiers" that fell within and outside of perceived geo-political boundaries. [59] An implied dichotomy of "civilized" and "uncivilized" pervades these maps, and images of roads served as one marker of "civilization" by defining where movement occurred and by facilitating the spread of social and economic institutions and practices.

Most eighteenth-century maps provided some indication of the influence of geography on the location and course of roads. Although maps did not reflect the degree of mathematical exactitude found on the survey draughts, they reproduced many of the descriptive elements called for in the surveying manuals. The level of detail varied from map to map, but one thread common throughout most was the relationship between roads and the topography that surrounded them. The most prevalent geographical features that maps display are rivers, creeks and mountains. Rivers and creeks appear either as single or double lines, with the boldness of their display determined by their size and

[57] Examples of these maps include Thomas Holme, *A Portraiture of the City of Philadelphia* (London, 1683); Nicholas Scull and George Heap, *A Map of Philadelphia and Environs* (Philadelphia, 1752); Charles Varlé, *To the Citizens of Philadelphia This Plan of the City and Its Environs* (Philadelphia, 1794); and John Hills, *A Map of Philadelphia* (Philadelphia, 1796).

[58] Examples of these maps include Thomas Kitchins, *A Map of the Province of Pensilvania Drawn from the Best Authorities* (London, 1756); Nicholas Scull, *Map of the Improved Parts of the Province of Pennsylvania* (Philadelphia, 1759); William Scull, *A Map of Pennsylvania …* (Philadelphia, 1770); Reading Howell's *A Map of the State of Pennsylvania* (1790); Cyrus Harris, *Pennsylvania Drawn from the Best Authorities* (Boston, 1796).

[59] Quotations from the insets of Thomas Kitchins, *A Map of the Province of Pennsylvania* (London, 1756) and William Scull, *Map of Pennsylvania*.

significance. Mountains are shaded, drawn as one long ridge, or shown as a series of small protrusions. Roads, upon meeting these geographical barriers, either follow their ridges and valleys or traverse them in order to connect two points.

More important than topographical depictions, for the purposes of this paper, is the presentation of the roads on these early maps. In addition to identifying the approximate position of roads, maps frequently place them in a broader social, economic and cultural context. Several Philadelphia and Pennsylvania maps demonstrate this practice, and in so doing reveal the cartographer's association of roads with social and economic development.

As early as 1752, maps of the Philadelphia area provided a visual image of the complex relationship between the city and its immediate hinterland. Nicholas Scull and George Heap's *A Map of Philadelphia and Its Environs* (1752) places Philadelphia, represented on the map as a grid of streets, at the center of an elaborate web of highways, roads and country lanes. Roads from Frankford, Germantown, Wissahickon Creek, Lancaster, Merion, Haverford, Darby, Passyunck Township, Moyamensing Township and Greenwich Township fall into the city from the north, west and south. Five ferries line the west bank of the Schuylkill, three the eastern shore of the Delaware. Houses representing private property cover the map. Churches and meetinghouses are present throughout, most notably at Frankford, Oxford, Germantown, Merion and Darby. There are mills of multiple varieties, including saw, fulling, and paper mills, as well as privately owned mills and buildings that are simply labeled "Mill." Later maps of Philadelphia and its environs reproduce many of the features of the Scull-Heap map, adding thereto the neighborhoods of Southwark, Kensington and the Northern Liberties. These maps show how roads connected settlements to one another, but more importantly to Philadelphia. In addition to showing how people moved from place to place, these maps suggest what kinds of activities occurred. As important as showing how people got to and from Philadelphia, then, was showing what they carried with them – agricultural produce, natural resources and finished goods.[60]

[60] Nicholas Scull and George Heap, *A Map of Philadelphia and Environs*. Later maps that reproduce a similar set of relationship include Charles Varlé, *To the Citizens of Philadelphia This Plan of the City and Its Environs* (1794) and John Hills, *A Map of Philadelphia* (1796).

Figure 1. Nicholas Scull and William Heap, *A Map of Philadelphia and Parts Adjacent* (1753). Source: *Gentleman's Magazine* (London, August 1753), p. 373.

Maps of Pennsylvania replicated many of themes found in the Philadelphia maps on a larger scale. They present an image of the highway system's rapid expansion in the decades before and after the Revolution and illuminate relationship between roads and

the churches, meeting houses, taverns, mills and forges established throughout the Pennsylvania backcountry. Building off his grandfather Nicholas Scull's *Map of the Improved Parts of Pennsylvania* (1759), William Scull's *A Map of Pennsylvania* (1770) expands the western boundary of Pennsylvania close to its present-day line and adds considerable detail in terms of roads and the prominent sites of social and economic activity along them. Scull presents the county towns of Reading, Lancaster, York and Carlisle as transport hubs, with multiple roads radiating out in every direction.[61]

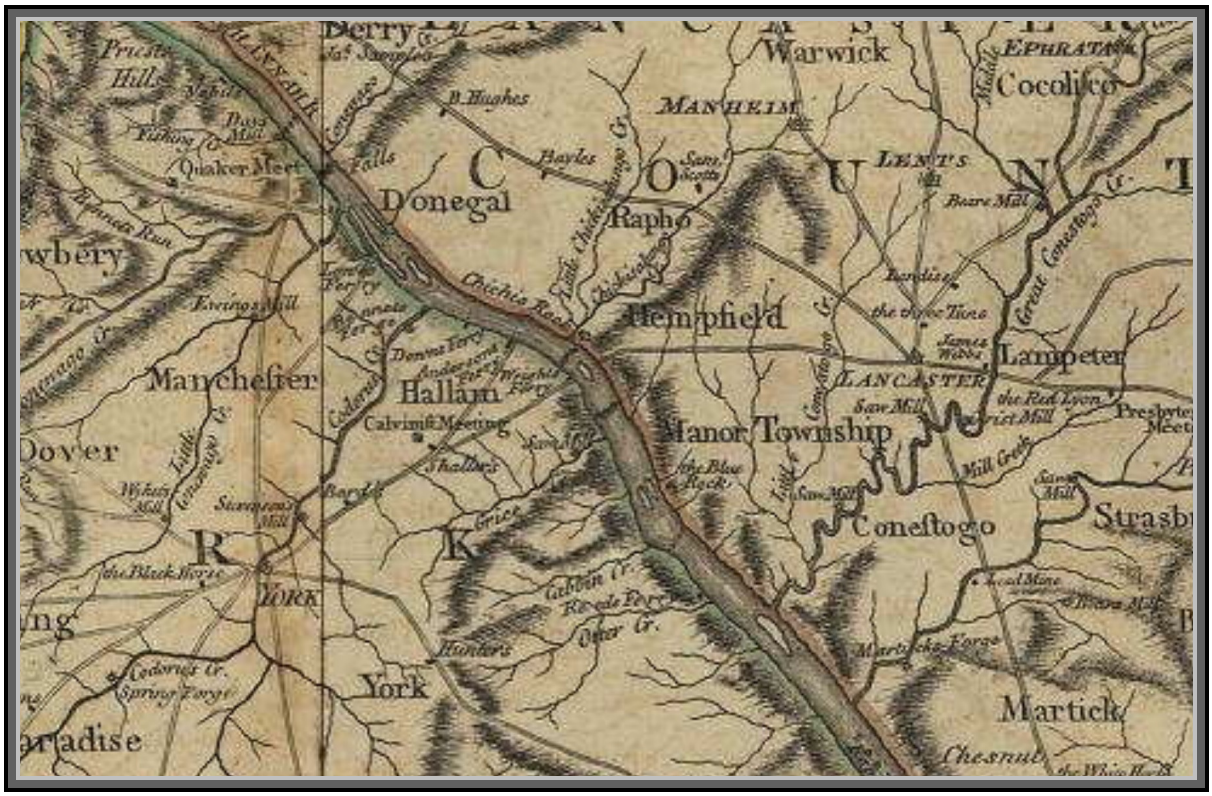

Figure 2. From William Scull, *A Map of Pennsylvania* (1770).

Furthermore, Scull's representation of the road from Philadelphia to Lancaster notes several of the places of note found on the Sellers-Sheaffer draught of 1767 and mentioned in the *Father Abraham Almanack for … 1770*, including the Plough, the Ship, John Miller's, Douglas's Mill and Conestoga Creek. This reproduction of the same places in

[61] Geographer Paul Marr's graph theory analysis of Scull's map uses the images of roads to analyze patterns of road construction and socio-economic development. His analysis reveals both the importance of interior settlements to creation of a viable transport network and the influence of transport on the development of land west of the Susquehanna. See Marr, pp. 7-12, 14-16.

multiple texts suggests that printers, cartographers and surveyors considered these spaces as much a part of the road as the earthen path itself.

Similarly, Reading Howell's *A Map of the State of Pennsylvania* (1792) illustrates the cartographer's conception of the rapid expansion of Pennsylvania's road system into western and northeastern parts of the state after the Revolution. The radial patterns of road construction that define the road system near the county seats in the southeastern and central portion of the state are reproduced in the western counties, most notably around Pittsburg and Washington. Like Scull, Howell places the road system he depicts in the broader social and economic milieu of the early 1790s. The map's key explains the symbols for furnaces, forges, saw mills, grist mills and minerals, and the map itself marks the sites of numerous churches, meeting houses, and taverns.

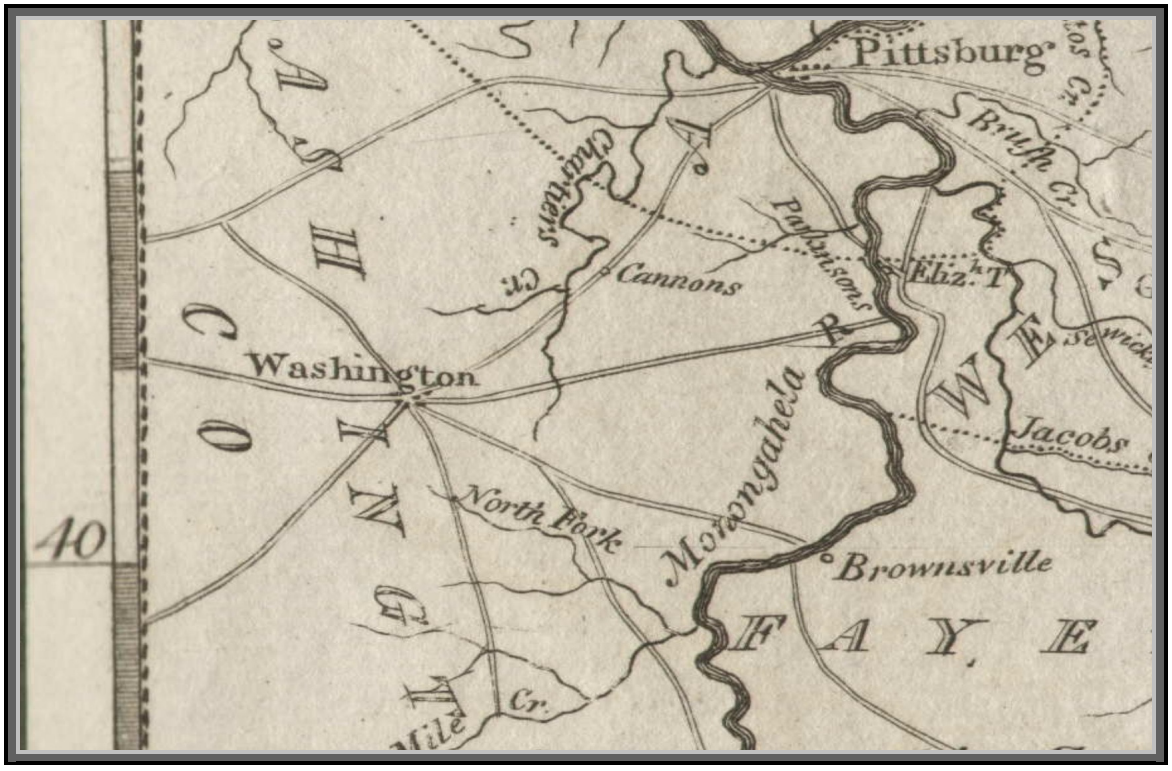

Figure 3. From John Reid (publisher), *A Map of Pennsylvania* (1796). Based upon Reading Howell's *A Map of the State of Pennsylvania* (1792).

Prior to 1790, cartographers did not produce maps on which they explicitly stated an intention to display roads as the central feature. This changed with the production of two maps designed to promote internal improvements: John Adlum and John Wallis' *A Map Exhibiting a General View of the Roads and Inland Navigation of Pennsylvania, and Part of the Adjacent States* (1791) and Reading Howell's *A Map of Pennsylvania, and the Parts Connected Therewith, Relating to the Roads and Inland Navigation* (1792). These maps clearly conceptualize land in terms of and bound by physical spaces of transport, including existing, proposed and partially constructed highways and canals. Surprisingly, their road coverage is spare relative to other eighteenth-century maps. Road coverage on the Adlum-Wallis map is particularly sparse and provides less detail than William Scull's 1770 map. Regardless, these maps provide a capstone to a late seventeenth- and eighteenth-century trend of European-Americans producing maps that represent how they understood the relationships between land and the physical spaces of movement in the world they inhabited.

Figure 5. John Adlum and John Wallis, *A Map Exhibiting a General View of the Roads and Inland Navigation of Pennsylvania, and Part of the Adjacent States* (1791).

Although many of these maps were too large and too few in number to circulate widely in their original form, they were reproduced in a number of contexts. Originally, maps were produced primarily for and under the auspices of colonial and imperial administrators by London publishers. It was only in the final quarter of the eighteenth century that American printers began printing maps for a broader American audience.[62] Large maps were eventually copied, reduced or modified, and then published in magazines, atlases, geographies, histories and published travel narratives.[63] In these ways, maps and the information they contained reached a much larger audience, both promoting and reinforcing certain assumptions about the landscape and Pennsylvania's highway system. This seemingly innocuous transmission served an important purpose. Knowledge of roads and their location carried with it the ability to define a road's relationship to the land and legitimate control over the movement of people, goods and information.[64]

Conclusion

In 1802, Mathew Carey published *The Traveller's Directory*, a small guidebook designed for people journeying from Philadelphia northward to New York and southward to Washington. Carey employed S.S. Moore and T. W. Jones, "two surveyors of respectable talents," to provide what he advertised as the most accurate and detailed description yet of the "main road" running through Philadelphia. Carey stated that the *Directory* was the first in what he hoped would be a series of travel guides illustrating on

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[62] For a discussion of mapmaking in early America, see J. B. Harley, "Atlas Maker for Independent America," *The Geographical Magazine*, Vol. 49, No. 12 (September 1977), pp. 766-71.

[63] Samuel Lewis produced a modified and reduced version of Reading Howell's *A Map of the State of Pennsylvania*, which was then published by Mathew Carey in a number of texts, including *Carey's American Atlas* (Philadelphia, 1790). Cyrus Harris' map, *Pennsylvania Drawn from the Best Authorities*, was reproduced in Jedidiah Morse, *The American Universal Geography* (Boston, 1796). For a description of how images of Philadelphia, including the Holme and Scull-Heap maps, were reproduced in different forms, see Martin P. Snyder, *City of Independence: Views of Philadelphia Before 1800* (New York: Praeger, 1975), pp. 36-41. For a studies of how maps were integrated into early geography texts and the impact they had on American readers, see Brückner, "Lessons in Geography: Maps, Spellers, and Other Grammars of Nationalism in the Early Republic," *American Quarterly* 51:2 (1999), pp. 326-30; and *The Geographic Revolution in America*, pp. 98-141.

[64] For general discussions of maps and how they articulate notions of an ordered social and economic landscape, see J. B. Harley, "Maps, Knowledge, and Power," in Denis Cosgrove and Stephen Daniels (eds.), *The Iconography of Landscape: Essays in the Symbolic Representation, Design, and Use of Past Environments* (Cambridge, 1988), pp. 277-312. For more specific analysis of the roads found on William Scull's map and its influence on social and economic development, see Marr, "The King's Highway to Lancaster: A Graph Theory Analysis of Colonial Pennsylvania's Road Network," pp. 1-20.

engraved plates and describing in text the roads connecting Philadelphia to the main European settlements in the mid-Atlantic.[65] The *Directory* includes thirty-eight maps and fifty-two pages detailing the principal landmarks a traveler would find during his journey. The *Directory* unites many of the practices and influences discussed above, and notes many of the primary and secondary features of Pennsylvania's highway system. It offers rich literal and visual depictions of one of the most heavily traveled roads in early America, but in far greater detail than anything yet produced.[66]

The *Directory* conveys an image of transportation between New York and Maryland that differs considerably from the one Dankers and Sluyter described in the winter of 1679-80. A fifteen-page description of the city of Philadelphia opens the text, and is followed by a narrative account of the familiar places found along the roads to New York and Washington. The account references creeks, stone and floating bridges, ferries, stages, and "packats," as well as post towns, markets, mills, iron works and coalmines. The *Directory* does more than imply the significance of these places and their relationship to one another and the road on which they were found. It describes their abundant natural resources, their production capabilities, and their "considerable trade with Philadelphia." It also describes the proliferation of markets and banks within the more important settlements. Finally, places "of public resort" and "summer residences" are integrated into the description, along with bridge and ferry tolls for travelers, horses, livestock, stagecoaches and carriages of pleasure and burden. By combining these elements, the *Directory* shows where movement occurred, how, for what purposes, and at what costs.[67]

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[65] With the exception of a reprinting of the *Traveller's Directory* in 1804, it appears as though Carey himself never published another such guidebook. The genre, however, proliferated in the middle decades of the nineteenth century. For an extended discussion of how the *Traveller's Directory* fits into a larger trans-Atlantic genre of guidebooks in the first half of the nineteenth century, see Will Mackintosh, "A Restless Nation: Travel and Social Mobility in the United States, 1790-186," (Ph.D. dissertation, University of Michigan, forthcoming 2009), chapter 2.

[66] S.S. Moore and T. W. Jones. *The Traveller's Directory, or a Pocket Companion: Shewing the Course of the Main Road from Philadelphia to New York, and from Philadelphia to Washington. With Descriptions of the Places Through Which It Passes, and the Intersections of the Cross Roads. Illustrated with an Account of Such Remarkable Objects As Are Generally Interesting To Travellers* (Philadelphia, 1802).

[67] Moore and Jones, pp. 1-52.

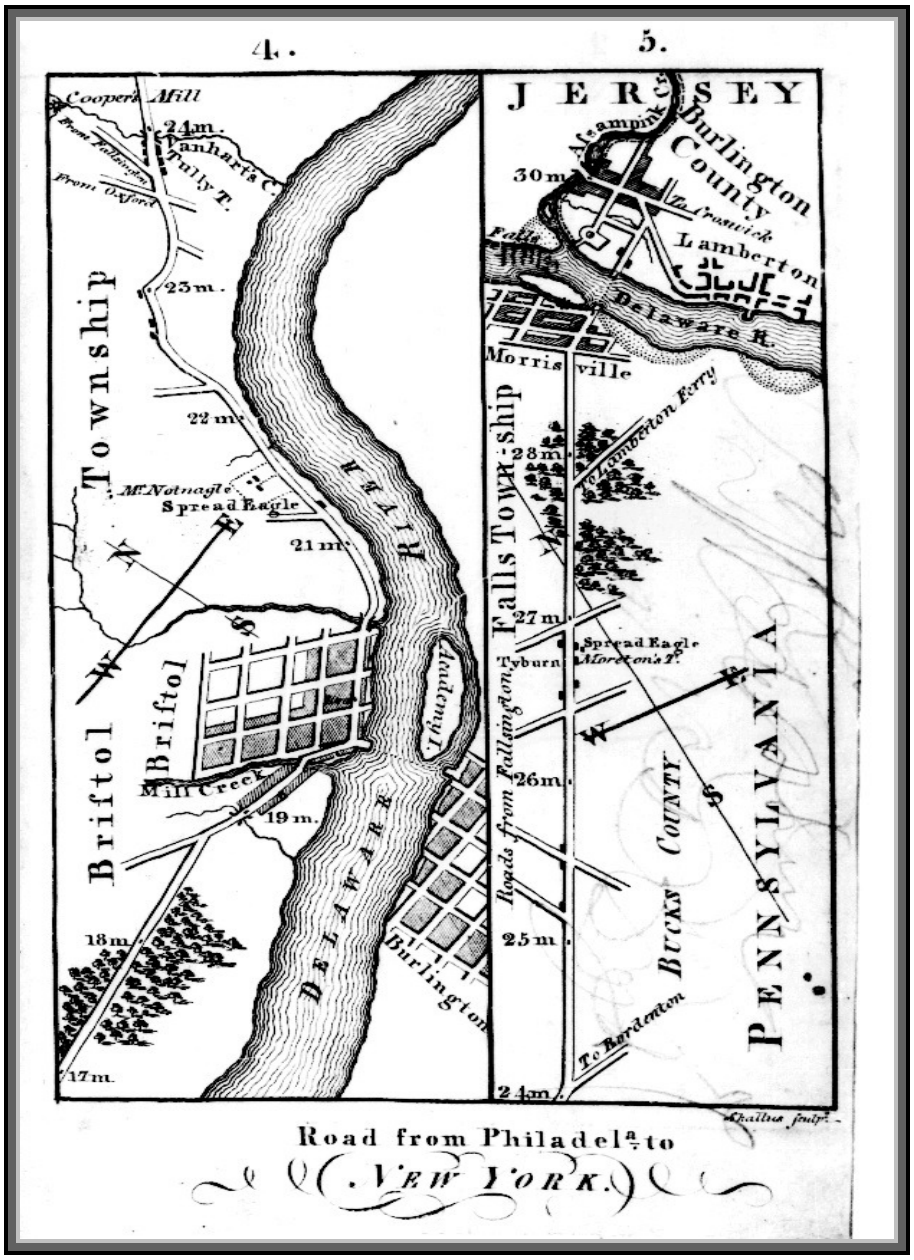

Figure 4. S. S. Moore and T. W. Jones, The Traveller's Directory, or, A Pocket Companion Shewing the Course of the Main Road From Philadelphia to New York, and From Philadelphia to Washington (Philadelphia: Mathew Carey, 1802).

The maps, like the descriptions, provide astonishing detail. Each map illustrates approximately seven miles of road, as well as the landscape to either side of it. Great care is taken to reproduce the elements proscribed in the surveying manuals. In addition to the places noted in the text, the maps show transport features like by-ways, crossroads and causeways, topographical features like hills, swamps and forests, social institutions like

taverns, inns, meeting houses, churches, and schools, and several more sites of economic production. On their own, but especially when viewed as part of the larger document, these maps clearly define the purpose of the roads, and show them in relationship to a broader network of social and economic institutions.[68]

Ultimately, the miry roads of the colonial and early national period proved far more problematic than any description or illustration suggests. Both contemporary observers and historians are quick to point this out. However, contemporaries also comment on the quality of roads, or offered no comment at all, which is as much a comment on the lack of mishap as any disdain for the road. Historians tend to accentuate only the limitations, failures and perils involved in early road transport, and overlook the fact that innumerable journeys passed without a hitch. As a result, they relegate the roads that were so fundamental in shaping social and economic life in early America to an ancillary role. The importance of these roads has been further diminished by an historiography that emphasizes the notion of a nineteenth-century transportation revolution; one that argues pre-1800 transport networks were functional, but ultimately ineffective in promoting social, cultural and economic development.[69]

Yet, by 1800 there existed in Pennsylvania a complex, dynamic, flexible and increasingly integrated system of transportation that reflected the infrastructural changes of the preceding century and provided the framework that nineteenth century developments both depended upon and augmented. The highways discussed in this paper were an integral component of that broader transportation system, and served as the primary means by which major settlements throughout Pennsylvania were connected to one another and Philadelphia. The practices, ideas and motives driving the development of that highway system persisted for centuries. They reflected a dramatically different conceptualization of land and movement across it than anything that had previously existed in the geographic area that became Pennsylvania. And they fostered a transformation as fundamental as anything that came after.

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[68] Ibid., (pages unnumbered).

[69] George R. Taylor, *The Transportation Revolution, 1815-1860* (New York: Rinehart, 1951). There have been numerous studies as a result of this seminal work, and they are too many to list here. Suffice it to say, the overwhelming majority of studies of transportation in early America after 1950 are influenced, either directly or indirectly, by Taylor's analysis.